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Michael John Trinder M.Ed

**The Development and Effectiveness of GNVQs -
Using Engineering as a Case Study**

**This thesis is submitted for the award of
the degree of Master of Philosophy (M. Phil)
In the discipline of Vocational Education**

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Abstract

This thesis is an investigation into the development and effectiveness of General National Vocational Qualifications (GNVQ), using the Engineering GNVQ as a case study. As part of this investigation I have examined the provision of vocational education and training (VET) since the start of the Industrial Revolution. There has been a continuing problem over the years in supplying enough appropriately trained personnel for the engineering industry in this country.

Government policy has been, for most of the time, to leave training policy to the companies themselves. It is only in the second half of the twentieth century that governments have become involved, through statutes, in the provision of training for industry. In the 1970s and 80s there was also a political reason for providing training schemes for young people, which was growing youth unemployment.

The method of research chosen for this investigation was:

1. Historical Research. This has involved examining the literature to examine the history of training in this country, though primary sources such Acts of Parliament, White Papers, and Official Reports, and secondary sources through examining the literature base.
2. Interviews and Questionnaires. This part of the research was carried out in two colleges in southern England, using both students and staff in these colleges. By using two methods I was able to confirm the results of the research by triangulation.

The results have shown that there has been a continual lack of co-ordination in training between companies and the government until recent times, and the GNVQ was one of the

methods introduced to break down the barriers between academic and vocational education. The results have also shown that the effects of the GNVQ to improve vocational education have been limited, and as a consequence changes are being implemented to the GNVQ to improve its record.

Chapter 1: Introduction

- **Outline of the Research Project**

The subject of this thesis is a project to research the effectiveness of General National Vocational Qualifications (GNVQs) at college level, using Engineering as a case study. The history of training and education in the United Kingdom will be explored, with particular emphasis on the Engineering Industry, in order to examine the effectiveness of the GNVQ within an historical context.

The research comprises of: a) **Empirical research** in two colleges, focussed on the GNVQ in Engineering and b) **Historical research** into the development of both education and training in this country, particularly in engineering. This included the political and economic demands placed upon industry (even today approximately 21% of the nation's GDP comes from manufacturing industry). The historical research took as its starting point the beginning of the Industrial Revolution through to today, but with emphasis on developments since the end of the second World War and the major technological changes that have taken place during this period.

- **Personal Reasons for starting the Project**

Until February 1997 I was an Assistant Head of Department of Engineering of one of the colleges used in the research, and was involved in the introduction and implementation of the pilot phases of the Intermediate and Advanced GNVQ in Engineering. I have always been very interested in the way training had developed in the Engineering Industry, and I completed a Masters Degree in 1991.

From 1987 to 1990 I was the Manager of the Engineering Industry Training Board (EITB) Training Unit at my college, and became involved with the first drafts of the National Vocational Qualifications (NVQs) in Engineering, validated by the Engineering Training Authority (EnTRA) which took over from the EITB. These NVQs were based around outcomes and were, in the main, rewritten modules from the existing EITB TR23 (basic training to standards) scheme which employers had been using in one form or another since the 1960s. At this time I was also involved with teaching on the BTEC National and BTEC Higher National schemes and so became familiar with both types of Vocational Education and Training (VET).

It became clear to me that the GNVQ was a major curriculum initiative in engineering, and in 1992 I was asked to give my opinion about piloting the new GNVQ in Manufacturing. I was of the opinion then that the students who entered the full time Diploma courses were mainly interested in electronics or mechanical engineering, and that the Manufacturing GNVQ was not appropriate for the college. We decided to wait until the Engineering GNVQ was introduced in 1994 before becoming involved, and the college became part of the national pilot for the GNVQ in Engineering. It was at this time that I decided to investigate the possibility of a research project to examine the effectiveness of this initiative.

- **The GNVQ Initiative**

The GNVQ was introduced as a result of the White Paper "Education and Training for the 21st Century" (Department of Education and Science & Department of Employment

(DES/DE) 1991) which strove to find a method of bridging the gap of esteem that existed between vocational education and A Levels and GCSEs. This stemmed from the desire to improve the skills base of the United Kingdom's workforce in the area of VET. The government did not have faith that a high quality training system necessary for young people was available, as for a long time vocational training was seen by the general population and some politicians to be second best to academic courses (Sharp, 1998). Over the years since the start of the Industrial Revolution there has been no coherent policy of training for industry. The apprenticeship system did not fully cater for the needs of industry, and was largely ignored by the end of the 19th Century. This will be fully discussed in Chapter 2 of the thesis.

A lack of trained personnel was a particular concern in the 1970s and 1980s and eventually led to the introduction of the system of National Vocational Qualifications after the de Ville report of 1986 (HMSO, 1986). This, however, proved not to be the answer for the training of school-leavers. Most of the able youngsters, their teachers and parents, still viewed the A Level system as the "Gold Standard" which meant that there was a lack of trainees entering Vocational Education. The GNVQ was introduced to improve this situation, to give a viable alternative to the academic A Level route for young people.

The GNVQ consists of 8 mandatory units and 4 optional units at Advanced level, and 4 mandatory units and 2 optional units at Intermediate level. In addition to this there were to be 3 mandatory core skill units; application of number, communication and information technology. There are 2 additional core skills units; working with others and problem solving. The qualification was piloted in 1992 with five vocational areas, art and design,

business, health and social care, leisure and tourism. Also included was manufacturing but this vocational area was very poorly subscribed to. In 1993 three more courses were added; the built environment, catering and science. The engineering GNVQ, which is the focus of this research, was piloted in 1994/95. The GNVQ exists at two levels: Intermediate and Advanced, initially called Level 2 and Level 3 to fit in with the NVQ Levels, with Intermediate being equivalent to GCSEs at grade C, and the Advanced qualification of 12 units being equivalent to two A Levels. There was also a parity with the NVQ system, with the Advanced being equivalent to Level 3 and the Intermediate equivalent to Level 2. The parity of esteem with A Level (Sharp, 1998) is the main thrust of the Advanced courses and the marketing of them. The GNVQ quickly brought about ardent supporters and equally ardent critics (Hodgson and Spours, 1997).

BTEC were in a difficult position in the early days of the NCVQ because they were not happy with the competence based model of NVQs, and certainly did not want to replace what was a well established qualification, the National Diploma and Certificate, still called by many people the Ordinary National Diploma and Certificate, with GNVQs. John Sellars, Chief Executive of BTEC at the time, wanted to keep to the knowledge and intellectually stimulating qualifications that were popular with students and employers (Sharp, 1998). The problem was that, although they did not have the statutory authority, the NCVQ had control of the finances for GNVQs and BTEC had no choice but to introduce the phasing out programme for National Diplomas.

Because of this, BTEC, in its initial publicity, announced the phasing out of National and First Diplomas according to a timetable, so FE Colleges thought that they were going to be

forced to change to the GNVQ, regardless of whether they thought it was desirable. The detractors were able to point out that by 1995 BTEC were forced to rescind the timetable for withdrawal, and allow National Diplomas to continue. In her letter to all providers, dated 7th February 1995, the Chief Executive, Christina Townsend, said that the withdrawal timetable had caused difficulties. This was for National Diplomas in particular, and these qualifications would be available "for as long as there is a requirement for them". This change of policy has ensured that many of the National Diploma courses have continued, particularly those who were at the end of the phasing timetable. The First Diplomas, however, have now largely disappeared and been replaced with the Intermediate GNVQ. The formation and structure of GNVQs will be discussed further in Chapter 3, as part of the emergence of Competence Based Education and Training.

In September 1992 approximately 9,000 students registered for the GNVQ at Intermediate and Advanced Level, and in 1993 nearly 70,000 students were registered. This increased to approximately 170,000 by 1997. The Government was very confident about the success of the GNVQ, quoting at every opportunity the figures above and implying that if the numbers are good then the qualification must be good. The Government maintained that the GNVQ's dual role of providing entry into Higher Education and Employment had been the reason for its success, and the parity of esteem between GNVQs and A Levels has been cited as the most important aim of the Government. Tim Boswell, Further and Higher Education Minister at the time, said "I cannot over-emphasise the importance of equal rigour in all three kinds of qualification" (EDUCA, 1994) "to ensure that GNVQs, NVQs and A Levels are treated with equal esteem".

The GNVQ is very different from the traditional BTEC Qualifications in the method that is used for the student to acquire and demonstrate skills. For the BTEC qualifications the colleges were responsible for setting and marking examinations and course work, with an overall percentage mark of about 50% needed to pass each unit. External moderators moderated the examinations, and sampled the course work. In the GNVQ the student is responsible for compiling a portfolio of evidence to demonstrate that he or she has acquired the relevant skills, and show that all the Evidence Indicators have been successfully covered.

An important part of the assessment, in terms of the parity of esteem with GCSEs and A Levels, is the use of external tests. In the GNVQs most of the mandatory units are tested externally by the awarding body and the tests are usually of one hour duration, and consist of multiple choice questions. There are three opportunities to take the tests throughout the year, in January, April, and June and for students who fail a test in June but would have otherwise completed his or her study, there is an opportunity to retake the test in September. Students have to achieve 70% to pass and if a student does not achieve this mark they are automatically entered for the next series of tests.

The system of external tests was a major source of concern in the engineering pilot, and in the first two series of engineering external tests the national success rate for Mathematics for Engineering was 1%, which says a lot about the standard of the tests, bearing in mind the fact that the cohort of students was similar to that of the BTEC National Diploma. BTEC and NCVQ urgently investigated the problem of the tests and in 1995/6 the tests were replaced by a very different model.

The grading structure of the GNVQ was also radically different, with students being able to obtain an overall grade of Pass, Merit or Distinction rather than units being graded individually as in the BTEC National and First courses. This caused particular problems for those hoping to go onto higher education, because admissions tutors were not used to this method of grading. It was often the case that tutors specified a certain grade for a specific unit, e.g. Mathematics, for entry to university. This caused problems for students who were only able to offer an overall grade. These characteristics of the GNVQ that make it so different from the courses that were available before will be the main focus of the research.

- **Brief Description of the Methods of Research**

I have decided to use the Engineering GNVQs as a Case Study for my research and I chose three different research methods. The first method was the interview. This is a qualitative method, which enables a researcher to get information in a detailed way. The method of interview I chose was to use set questions. This enabled me to ensure that certain key points are covered, but can also probe and develop other issues that may be raised by the respondent in the interview. The second method was the questionnaire, a quantitative approach which allows a larger population to be investigated. The questions cover the same ground as the interview, and allowed a statistical analysis of the findings. The third method was historical research. This examined the development of training over the time since the industrial revolution.

The sample that was available to me proved to be a problem because of the change to the

BTEC timetable for withdrawing the National Diploma Courses. This meant that there was only two colleges within my reach that offered both the Advanced and Intermediate GNVQ in Engineering. One of these colleges was the college where I was employed, and I had to be aware of the problems that this might cause. The methods I used to minimise this effect will be discussed fully in Chapter 2. The total numbers of students studying for the Engineering GNVQ nationally in 1995 was approximately 5,000, and the students who completed my questionnaire constituted about 5% of this total which was a very credible sample.

I decided that it would be useful to stratify the student sample into Advanced and Intermediate students and also students by age. I was interested in any differences between the Advanced and Intermediate courses, and also the effects of age of students. A number of students studying on vocational courses are over 19 years of age after being employed and there may be differences of opinion between the younger students, who often join the course from school, and the more experienced, older students. I decided to stratify the staff into two groups; those teaching on the Intermediate Course and those on the Advanced Course, although some staff taught on both courses, some were only involved with one.

To enable me to examine the effectiveness of the GNVQ in Engineering I had to determine what measures I should examine to determine the effectiveness of the qualification. These focussed around the government's aims for the qualification, and the differences between the new course and the original BTEC National and First Diplomas. The effectiveness parameters chosen are as follows:

- **The core skills system.** How staff and students view the system, and how effective

they are perceived to be.

- **Grading themes.** These now require a large amount of course work, upon which the student is graded. A single grade is now given over the whole qualification, rather than individual units as in the past.
- **The units.** How they are written, now that they are written in outcome-based terms, and how they are understood by students and staff.
- **External Testing.** How the new multiple choice tests are viewed by staff and students.
- **NVQ Provision.** Students are able to complete units of engineering NVQs as part of their GNVQ and incorporate them onto their certificates.
- **Access to Higher and Further Education and Employment** for GNVQ students.
- **Comparison** between GNVQs and First and National Diplomas, the BTEC Qualifications that were initially due to be replaced.

This section has been a brief outline of the research methods chosen and also the effectiveness parameters chosen. A detailed account of the research methods is given in Chapter 2.

- **Outline of the Structure of the Thesis**

In this chapter so far I have given an introduction to the GNVQ and its major provisions and the research methods chosen. I will now give an overview of the thesis, outlining the chapters and their contents.

- Chapter 2 will discuss the research methodologies chosen for both the qualitative and

the quantitative parts of the enquiry, and the reasons for these. Also important is the relevant literature that examines the validity of these methodologies, and the chapter will examine these as well. This chapter will also include details of how the research was piloted.

- Chapter 3 outlines the historical context of vocational education and training in this country, starting from the Industrial Revolution. This context is important because there is a constant theme of a reluctance by employers to take the initiative for training their workforces over this period. The chapter describes a) education and b) the training of workers separately as there are major differences between the two. Developments since the end of World War 2 have been emphasised as being particularly important to the provision of trained workers, because of the increased use of technology and the need for ever more skilled employees.
- Chapter 4 examines the development of outcome based education and training in the United Kingdom. This was important because of the way the GNVQ was developed using, initially at least, the same methodology as the NVQ which is a competence based qualification. I shall examine within this chapter the formation of the government programmes of the 1970s and 80s to combat rising youth unemployment. The formation of the NCVQ is also important, and how this affected the provision of education and training within Colleges of Further Education. This chapter also contains a detailed discussion of the theoretical views found in the literature about competence based education and training.

- Chapter 5 gives the results of the main study and insights gained in the pilot study. The results of the questionnaires have been treated statistically, and the interviews have been analysed. Two methods, questionnaires and interviews, have been used as triangulation and a follow up study in one college was also used.
- Chapter 6 contains the discussion and conclusions of the research. This includes examining what occurred before the start of the GNVQ and examines the changes that have occurred since. The effectiveness parameters have been used to evaluate the GNVQ in Engineering, and helped to determine the conclusions.

The next chapter will detail the research methods used in my research, how the research was piloted and how the decisions about the research were made.

Chapter 2 - Research Methods

This chapter describes the way in which the methods of carrying out the research were selected, bearing in mind the data required and other criteria that had to be taken into account. These included the amount of time available and the number of colleges that were actually using the GNVQ in Engineering course at the time of the research. The structure of the chapter is:

1. Issues regarding the validity of the data collected, including the problems of bias.
2. The details of the research methods and the sample used, including how the methods were piloted.
3. Summary.

1. Data Validity

• General Issues

A major problem in any qualitative research is researcher bias, whether deliberate bias or non-deliberate bias. (Plummer, 1983). Deliberate bias is when a researcher sets out to prove a viewpoint rather than look at the truth and then falsifies or amends the evidence to suit his or her case, giving rise to false conclusions. Non-deliberate bias can occur when a researcher is so involved with their work that they unconsciously slant their work to prove what they think could be the truth, e.g. in the language used in a questionnaire, or the questions in an interview. The important thing is that I was aware that bias can occur before carrying out research.

Another source of possible error is the researcher him or herself. I was very aware of the problems of bias that could occur because of my years of experience as an engineer and an

engineering lecturer and I do , of course, have views about the industry and training within the industry. I was aware of this, and made sure that my personal views were not made known to the respondents. I had to make sure that I did not lead the respondents in any way because of my own experiences, and checked for this within the triangulation.

Another possible problem was the fact that I was employed as an Assistant Head of Department at one of the colleges, College A. This could cause problems of validity because the students and staff might tailor their answers to suit what they thought I wanted to hear. To help minimise this problem I asked the various Course Tutors to distribute the questionnaires and collect them in, which meant that I had no direct input to the students. For the interviews I made sure that none of the students interviewed were those that I actually taught, which again minimised the possibility that they would give false data.

Overcoming the problem with the staff was more difficult. I distributed the questionnaires by internal mail and they were returned in the same way. This meant that I did not know which member of staff completed which questionnaire. When conducting the interviews I stressed the aspect of confidentiality and asked the staff to be open and truthful. When the interviews were completed from both colleges I checked the results from both sets of staff and found a strong correlation between the two, which led me to believe that my position as Assistant Head of Department did not effect the research.

Another source of bias is the interaction that can occur between researcher and respondent. This bias can occur from the physical setting, prior interaction and non-verbal communication. I was able to be reasonably certain that in my case this bias did not occur. I conducted all the interviews in a neutral venue to ensure that the respondents did not feel

threatened by using an official room or an office that might inhibit their responses.

- **Follow Up Survey**

Another method that I used for checking the results was to examine changes in data over time. This meant interviewing a selection of respondents again, and also repeating the questionnaire in a follow up survey. This gave data as to whether the responses had changed from the first set of results. The best way that I could achieve this was to use second year students who were respondents to my study during their first year of the course. This had to be the Advanced GNVQ students in the second year of the course from the first college at which I conducted my research. The one drawback was that number of students still studying at the college from the previous year, as there was a national problem with drop out on GNVQ courses which effected this college as well.

- **Confidentiality**

A major concern for respondents participating in research and, therefore, its validity is the issue of confidentiality. For research of this nature to be valid the researcher has to ensure that the personal views of the respondents is treated with confidence, otherwise the results of the survey could be compromised. For example students could be concerned when asked about their lecturers that what they said would get back to the lecturers. They would also be careful about what they said about the college generally in case their views became public.

I discussed the confidentiality aspect with all the respondents before any research was carried out and I did not ask students for their names, or the identification of anyone else during the interviews or in writing in the questionnaire.

2. Details of Research Methodology

When deciding to conduct the research I had to consider some important personal points. At the time of the research I was an Assistant Head of Engineering in one of the colleges used in the research, College A. I had been teaching at this college since 1985 and been employed in engineering since the late 1960s and it was inevitable, therefore, that I had some set views about engineering and training. I received my training in the RAF in a very formal setting with numerous trade tests and examinations. I have also studied part-time for the Ordinary National Certificate (ONC) and the Higher National Certificate (HNC), both with the Joint Boards, and so have had personal experience of Vocational Education and Training (VET). Since becoming a Lecturer I have studied part-time for the Certificate in Education and a Masters Degree in Education Technology. These courses alerted me for the need to be objective and to scrutinise carefully the questions used in the questionnaire and in the interviews to ensure objectivity.

I had to decide whether qualitative and/or quantitative methods would be most appropriate for the research. Quantitative research is that which uses some kind of numerical base to quantify the results and qualitative research involves meanings and experiences (Coolican, 1990). It became clear during my initial studies of the literature that a mixture of both quantitative and qualitative research methods would be appropriate in this case. Bearing this in mind I decided upon three types of research methods. I used an historical, literature-source research method to investigate the history of training in this country. I used interviews to enable an in depth study of the subject, and also used a questionnaire to enable a larger sample to be investigated and to provide triangulation.

- **The Sample**

The potential total research population for my study was the number of students studying for the GNVQ in Engineering in the country as a whole. The total numbers in 1995 were less than 3,000, a very low number for a national course. Because of the decision of BTEC to allow the National Diploma Courses to continue, many colleges decided not to run the Advanced GNVQ in Engineering, hence the low national numbers. There were only two colleges offering both the Advanced and Intermediate GNVQ in Engineering in reasonable distance from my home, and these were the two colleges chosen for the research. The colleges were in the south eastern region of the country, about thirty miles apart. Both colleges were large Further Education Colleges, with College A having approximately 13,000 enrolments and College B approximately 11,000 enrolments.

The Engineering Department of College A had 35 staff, and the Engineering Department of College B had 20 staff. Both departments ran the Advanced and Intermediate GNVQ in Engineering Courses. College A had two groups of first year Advanced students, and one group of Advanced second years during the pilot year, 1994/95. The following year, 1995/96, the number of Intermediate students increased in College A to 80 because a large local company used the Intermediate GNVQ as part of their manufacturing training.

College B had three groups of students; one of each year of the Advanced GNVQ and one Intermediate Group. The total number of students available for the main research was approximately 150, and 20 staff who taught on the GNVQ programmes. Using these two colleges gave a sample of 5% of the student national total, which is a good return for a national course. During the research I was also able to use other reports to check the validity of my research concerning some of the issues, these included the FEFC Inspection

Reports (FEFC, 1995) and the Capey Review (NCVQ, 1995). Taking this all into consideration, I am confident that the research was representative.

- **The Pilot**

I decided to pilot the two methods of empirical research, interviews and questionnaires, at College A in the academic year 1994/5. This is also the college where I was, until 1997, employed as an Assistant Head of Department, responsible for the Technician Studies Section and departmental quality issues. I was aware of the problems that could be caused by this, as discussed earlier, and I carried out the strategies detailed there. For this reason I am confident that no bias has occurred during the research.

The college was asked to participate in the national pilot of the GNVQ in Engineering and the pilot study for my research was undertaken in the GNVQ pilot year, 1994/95. The study investigated both the Advanced and Intermediate GNVQ Courses. The Pilot Study consisted of a series of interviews with a sample of staff teaching on both courses, and a questionnaire to all students and staff involved with the GNVQ. The interviews with the staff were carried out in the first term of that year and the questionnaires, both staff and students, during the second term. The results of the study will be shown in Chapter 5 with the results of the main study, and the pilot methodology will be given within the individual headings for questionnaires and interviews given below.

The three methods of research used in this research study will now be given in the order in which they were carried out.

- **Historical Research Methods**

Before commencing the empirical research I decided to start investigating the historical background of the training and educational systems that exists in this country today. Historical research can be treated in the same vein as scientific research in that it has to be treated with the same rigour in respect of its validity. Information found should be checked with other sources wherever possible, to ensure the data is correct. When searching the literature one has to be aware of views that are peculiar to one person and not substantiated with another source. It is important, therefore, that the same conditions about validity are applied to historical research as empirical research (Hockett, 1950).

For my research I used primary sources of information, particularly Acts of Parliament, White Papers, Reports and Discussion Documents wherever possible. Most of the initiatives that have occurred over the years to improve the state of VET in this country have been government instigated which means that official documents are very important. The EITB and the bodies that followed, the Engineering Training Authority (EnTRA) and the Engineering and Marine Training Authority (EMTA), have also published research and policy documents. This was particularly true in the early days of the EITB where information about the state of training in the industry became available for the first time. Prior to this the only national information about vocational training was educated guesswork, so the work of the EITB was fundamental to my research into the later stages of training in this country.

I have conducted a literature search for theoretical papers and books concerning the education system and VET, and I have been very careful in examining a wide range of opinions to give my thesis a full spectrum of views before drawing my own conclusions in Chapter 6. I have used several libraries for the literature search, particularly the library of

the Wheatley Campus of Oxford Brookes University which has a wide stock of education texts. I have also used several on line databases including the UK Government Information Service. The sources I have detailed have provided a comprehensive range of the relevant literature.

- **The Interview**

The type of interview that I used was a semi-structured research interview, with set questions that were mostly open-ended. This enabled me to be flexible within the interview, as open-ended questions tend to help a researcher go into more depth if required. This method meant that I had a list of questions prepared beforehand and I asked these questions in turn. I was, though, aware of any important issues that arose in conversation and was prepared to explore them where necessary and ask supplementary questions as appropriate. This enabled me to explore issues that were raised by the respondents which hadn't occurred to me in the first instance, and this proved helpful to the research (Tuckman, 1972).

I decided that for some respondents I would use the group interview, where I interviewed a group of respondents together using the same list of questions as for the individual interviews. This was the only way to interview more than one or two people because of the limited time available due to the availability of the students and staff and when I could actually conduct the research. Group interviews proved to be a very useful method of obtaining the views of respondents within a discussion format, and allowed me to interview higher numbers than I would otherwise have been able to (The Open University, 1991).

I was aware of the problem of recording group interviews as it is sometimes difficult to hear what is being said on tape. In my case the recording was acceptably clear. Within group interviews an answer from one respondent can trigger off responses from others, which can lead to interesting developments and can, therefore, be more productive than individual interviews.

The interview questions were tested in the pilot study when I interviewed 4 members of staff using the semi-structured interview described earlier. I recorded the interview with the permission of the respondents, and made notes from the tape afterwards. The open-ended questions did provide the flexibility that I required and gave an in-depth study of the implementation of the GNVQ that was desirable.

The staff were selected on the basis of; 1) Their teaching duties - I wanted staff from both the intermediate course and the advanced course; 2) Their experience - I wanted a mix of experience from those who had been teaching for many years and those who were relatively inexperienced; 3) Their discipline - I wanted staff from both the mechanical discipline and the electrical/electronic discipline because I was interested to see if these factors affected their views on the GNVQ. The results from the pilot interviews were encouraging in that there was good correlation between the answers given by the different categories of staff which gave me confidence in the questions themselves.

I was aware when conducting the interviews that respondents can give misinformation either on purpose, i.e. lying, or trying to give the interviewer the answers they think he/she wants. Misinformation can also be given by taking certain knowledge for granted, e.g. particulars about the course and the college that is familiar to them. By close observation

of the respondent, and by close questioning I tried to obtain accurate information.

I recorded all the interviews with the permission of the respondents. If an interview is recorded and transcribed afterwards there can be no mistake in what the respondents actually said. I used a small battery powered cassette recorder, which gave a reasonably clear reproduction of the interview itself.

I was sure that the mixed use of group and individual interviews was the most effective way of obtaining the information that I needed, taking into account the logistics of travelling and the time available. The results from the pilot interviews were verified by the use of a method of triangulation and the method chosen was the questionnaire.

- **Questionnaires**

A questionnaire is an effective method of gathering information, easy to administer, quick to complete (if developed effectively) and provide a direct comparison between different groups of people, which was particularly useful in my case (Cohen and Manion, 1980).

When I designed the questionnaire I had to take care in specifying the questions so that they covered the effectiveness parameters that I had chosen (see Chapter 1) in a way that was easy for me to collate the information. I therefore had to make a decision about how the data should be presented in the thesis. I decided that the data from the questionnaire was to be presented in a statistical form but, in addition, written comments from the respondents on the questionnaire was also encouraged.

There are a number of ways in which a questionnaire can be completed by a respondent which are: selecting from a list, placing items in categories, ranking items in order, using a

scale or a grid (Borg and Gall, 1979). In my questionnaire I chose to use a Likert scale for the answers to the questions, as this lent itself very well for statistical analysis. The scale used gave 5 for a positive response to 1 for a negative response. The actual layout and the language used in any questionnaire is of paramount importance, because it should be unambiguous and easily understood (Davidson, 1970). I was aware, particularly when dealing with young people, that if the layout was not user friendly the respondents would be deterred from answering the questions. This included making sure of adequate spacing between lines, and that the instructions were clear to the respondent (The Open University, 1991).

Stratifying is very useful in determining whether different groups respond differently, and I was particularly interested in any differences between the Advanced and Intermediate Courses, and whether the age of students effect their perceptions of the course. To enable me to do this the results of the questionnaires of the students were stratified into; 1. Advanced and Intermediate students; 2. Students aged 16-18 years; 3. Students aged 19+ years. The staff questionnaires were stratified into; 1. Advanced Staff; 2. Intermediate Staff. A copy of the Staff and Students Questionnaires are contained in the Appendix.

I decided to assess the questionnaire by the use of a statistical analysis using means and standard deviations. Using the Likert scale of 1 to 5 meant that the higher the mean the more positive the opinion was about that particular question. The standard deviation would give an indication about how wide a range of opinions there were for that question. For example, a mean of 3.5 would give the indication of a favourable response, but a standard deviation of 1.5 would indicate a wide range of opinions from 2 to 5.

The questionnaire that I designed was tested in the pilot study on both staff and students. The staff questionnaire was carried out in March 1995 and 10 staff, out of 14, responded. The results of the questionnaire were calculated as an overall mean, and then a mean for advanced and intermediate staff for comparison purposes. It was originally intended to include standard deviations, but as the sample size was small I decided to use the means only. Regarding the comparison of means between Advanced and Intermediate staff I decided to continue with this although the numbers were low. This was because there were interesting points between the Advanced and Intermediate courses that might show up with the different staff and I particularly wanted to test this.

The student questionnaire was delivered to 41 students studying the GNVQ at College A, and 36 responded. This consisted of 27 Advanced students and 9 Intermediate students. The results were analysed into; all students, intermediate students, advanced students, students aged 16 and 17 years and students aged 18 years and above. The questionnaire was analysed by using means and standard deviations. The only drawback to this was the low numbers of intermediate students which made the statistics questionable. I decided to continue with this for the pilot for comparison purposes but would be aware of any low numbers in the main study.

On the questionnaire itself I gave some space at the end for any comments, as I wanted the staff and students to write down any particular points they wanted to make. I found that the staff did not use the end of the questionnaire, but wrote comments underneath each question which I was not expecting. I amended the questionnaire to give space underneath each question for any additional comments for the main study.

3. Summary

This chapter describes the research methods I decided to use and how they were carried out. I am satisfied that the methods chosen were appropriate for what I set out to do; to investigate the methods of training in the engineering industry over the years and in particular the effectiveness of the GNVQ .

After analysing the data from the pilot questionnaires and interviews, I found that some of the respondents confused questions 6 and 7 on the questionnaire. These were; Student Question 6. Have you found the instruction sheets for the assignments; Easy or Difficult to follow. Staff Question 6. Do you think the students find the instruction sheets for the assignments; Easy or Difficult to follow. Staff Question 7. Have you found the way the GNVQ units are written; Clear or Unclear. As the instructions sheets were largely derived from the units themselves I decided to amend these questions to one question 6; Staff - Have you found the way the GNVQ Units are written clear or unclear, and Students - Have you found the way the GNVQ Units are written easy or difficult to follow. This amended question caused no problems with understanding in the main study.

Another change that occurred after the questionnaire had been designed was that all students studying on the Engineering GNVQ now have the opportunity to work towards the EnTRA NVQ Level 2 in Engineering and have it included as Additional Units on their GNVQ Certificate. This followed an agreement between BTEC and EnTRA and broadened the range of the GNVQ. As it was an important development I included in both the questionnaires and interviews a question concerning these possible additional units.

After considering the Pilot Study I found I did not have to change the research methods

very much before the main research was carried out. The interview technique and the questionnaires worked satisfactorily, and only needed some small modifications as detailed above. The fact that there were only two colleges using both the Intermediate and Advanced GNVQ in Engineering locally was initially a concern, as one of the colleges involved was where I was employed at the time. After taking the precautions outlined earlier I was satisfied that there was no problem using this college.

Another concern was using one college for both the pilot and for part of the main study. This concern was allayed when I calculated that the students used for the pilot study would only form about 5% of the students who would complete questionnaires for the main study, and there would be no duplication of interviews. With regards to the staff I used the questionnaires again but, as there was a change in the GNVQ team, some of the staff were different. By careful examination of the results from both the pilot and main studies I was satisfied that using College A twice did not effect the results of the main study in any way.

The next chapter is the results of the first part of my research, the historical investigation into the history and background to VET from the time of the Industrial Revolution until the present day.

Chapter 3 - The History of Vocational Education and Training in the United Kingdom

This thesis is concerned with the effectiveness of GNVQs, using the Engineering GNVQ as a case study, and it is therefore important when considering the empirical study to explore the historical background to the Vocational Education and Training (VET) system in this country. This will provide the link between the provision of VET, the training needs of industry and the anticipated effects upon the economy. The introduction of NVQs and the GNVQ were the latest response to the training needs of industry in this country, as industry changed due to the ongoing development of technology in industry.

To succeed as a world economy the United Kingdom needed a well motivated and skilled workforce, which meant that the engineering industry needed to improve the overall standard of VET. This chapter will explore the major changes in vocational education, particularly during the last thirty years, and examine how the system has changed over the years in responding to the rapidly changing needs of industry, and will consider how effective these changes have been.

Before the industrial revolution of the 18th Century there was no system of vocational education as such, and it was argued that it wasn't necessary in this country. Competitor nations, particularly Germany, thought otherwise. This can be shown by two quotes from the middle of the 19th Century, the first by Lord Melbourne to Queen Victoria; "I don't know, Ma'am, why they make all this fuss about education; none of the Pagets can read or write, and they get on well enough". The second is by Friedrich Ebert, of the German

Social Democratic Party at about the same time; "General Education is the vocational education of the upper class; vocational education is the general education of the working class" (Finegold et al, 1991). Even then, the difference in attitudes between Britain and others is plain.

In a report to a Special Committee on Technical Education to the London County Council by Professor H. Llewellyn Smith (LCC, 1892) it was stated that the suspicion by managers and staff about training was still deeply rooted. This problem continued throughout the twentieth century, and was particularly acute after the second world war when it was found that not all firms were training their employees. This was at a time of major technological change when trained employees were needed. Employers were prepared to provide job training for specific tasks, but not on the overall training that would have provide a multiskilled workforce (Page, 1967).

There is a continuing theme of a persistent failure to provide enough trained, flexible personnel for industry in the United Kingdom which has continued since the commencement of the Industrial Revolution in the 18th Century. There has been a belief in this country that the training systems in Germany, the United States and Japan have been better adapted to meet the needs of technological change over the last fifty years (NEDO, MSC, 1984). The Training Systems in this country are different to that of other countries because of the political commitment to voluntarism that has always existed. These factors can be seen in the social history of the country and this has exerted a powerful influence on the system for the non-compulsory training that had evolved up until the Industrial Training Act in the 1960s (Sorge, 1979). Governments always

maintained that industry knew best how to provide the training that it needed, and that market forces would therefore decide what sort of training was necessary

We have always had, in this country, two streams of VET, the college based educational courses, like the Ordinary National Certificate (ONC) and City and Guilds of London Institute Qualifications (CGLI), and training that has traditionally taken place at the workplace in the form of apprenticeships and traineeships. Within the company provided schemes there was no national body to provide criteria for the training, and so the only form of national standards was the educational courses which were moderated by the Institutions and the Department of Education. This meant that the vocational training was purely based upon time served and a pass in the academic qualification being studied. The college courses were mostly technical, with again no emphasis on the actual skills that workers needed, and the assessment was purely academic by examination. Until the formation of the Technical Education Council (TEC) in 1973 and the Business Education Council (BEC) in 1974 students were not graded, the final assessment being solely on percentages gained in the examinations.

The historical development of education and training in this country will be investigated by examining three major strands of development. These are:

- 1. Vocational Education and Training in Formal Education Settings.** This is the formal education that young people obtained when at school and at college. In the main this education was theoretical, with assessment mainly by formal examination.
- 2. Vocational Education and Training in Work-Place Settings.** This is the vocational training that young people obtained, the main vehicle for this over the years being the

apprenticeship and traineeship. It is also necessary to consider non-formal on the job training which was particularly true at the end of the 19th Century.

3. Vocational Education and Training for the Engineering Industry. This section will examine specifically training in the engineering industry.

4. Conclusions.

1. Vocational Education and Training in Formal Education Settings

I will consider this area of study in three periods; a) The period up to the end of the 19th Century, b) The period from the start of the 20th Century to the end of the Second World War and c) The period post war.

- **The Nineteenth Century and Earlier**

By the late 18th Century and the beginning of the Industrial Revolution the structure for education and training that had been in place over the centuries was not effective in providing skilled workers for industry. A new system was necessary to cater for these needs. At this time education in the United Kingdom was very different to that which young people experience today. Children did not attend school on a daily basis, and often had employment in industry. Some received education on Sundays and in the evenings, and the quality of education was not of a uniform standard (West, 1975).

The time spent by children in school varied from 6 months to over 5 years, and the majority of children left school around ten years of age. In addition most children attended Sunday School. A survey in Hull in 1839, by the Manchester Statistical Society, showed that most children received some education for some of the time and were literate to some

degree, see table below.

Youths from 9yrs to 16 yrs	
Those who can read well	206
Those who can read imperfectly	217
those who cannot read at all	62
	Total
Those who could write name	236

(West, 1975)

More important than the quantity of education people received was the quality of education in terms of the numeracy and literacy rates. In the early part of the 19th Century reading was generally taught before writing, as people wanted to be able to read the magazines and newspapers that were available. Estimates of literacy rates were obtained from public records, such as workhouse records. A report published in 1841 by the Poor Law Commissioners, (HMSO, 1841), on the Training of Pauper Children showed that in Norfolk and Suffolk 87% of children maintained in the workhouse could read to some degree, and the report also showed that 53% could write.

This literacy rate was confirmed from a study of Northumberland and Durham miners in 1840 which showed that out of 843 miners, 445 could read and write, 220 could read only and 178 could neither read nor write. This was a major concern for the training of employees in the emerging industries, as there was an urgent need to train skilled workers in a different way to that which had occurred in the past. New skills in science and technology were becoming important for these employees, to enable them to perform adequately in their employment. Previously workers had been trained individually by other skilled men, with skills being passed on over generations.

When examining the educational performance of this country against its major

competitors, the United States and Germany, it can be seen that the other countries were beginning to invest more in education than the United Kingdom. Comparison figures are available for the period 1860 to 1880, which were, in many ways, the formative years of industrial growth..

Country		GNP/Capita (\$)	% share of Educ.	% by share of Children
England & Wales	1858	134	1.1	4.95
	1882	174	1.06	4.63
United States	1860	147	1.06	3.2
	1880	186	1.1	4.53
Germany	1860	100	1	4.2
	1880	120	1.6	7.3

(Steedman, 1997)

It can be seen that during this important period, when per capita GNP was rising in all three countries, the amount of money spent on education in England and Wales was decreasing as a percentage. This was true both as a raw figure and when the number of children in the population is taken into account. This differs in comparison to the other two countries who were the United Kingdom’s main competitors in world markets, and who increased their educational spending. This is a good example of the problem outlined above - the United Kingdom’s failure to provide high quality training.

Not many people in the country realised the problem, but Lyon Playfair, a chemist who was on the staff of the School of Mines in London, spoke out against the lack of technology in schools and universities. He maintained that, until such time that this omission was rectified, the United Kingdom would continue to lag behind her competitor nations (Argles, 1964). In 1853 the government set up the Department of Science and Art, with Playfair as a joint Secretary, and in 1857 this became part of the newly formed Education Department, with Education being responsible for primary education and

Science and Art responsible for secondary and technical education.

To cope with the rapidly rising demand for a skilled workforce a Royal Commission on Technical Instruction, (HMSO, 1882) was set up, to investigate the needs of industry and compare training in this country to others. The Commission recommended that science should have an increased profile in all schools, and that drawing, metalwork and woodwork should be encouraged in elementary schools. The Commission also recommended that teacher training should be improved in the field of science, with teaching becoming more practical. The commission was concerned with the availability of technical books in libraries, and proposed that more funds should be released for this. Although the recommendations were accepted, there was no real change in government policy at this time.

• Education during the first half of the Twentieth Century

At the beginning of the twentieth century two education acts were passed, the Acts of 1902 and 1918. The 1902 Act was a major change for education in this country. It abolished the school boards, who previously ran education in their areas, and co-ordinated all forms of education under Local Education Authorities (LEAs). Under the Act the LEAs had to appoint education committees who had a statutory duty for all forms of education for young people in their area.

The technical colleges also came under the remit of the LEAs, thus providing the foundation for the general provision of technical education. In addition the LEAs had a duty to consider higher education, and were able to award scholarships and pay fees for

both further and higher education. The main problem for young people was that the restriction of hours worked by young people was not policed by the government, and so was largely ignored (Argles, 1964). The problems were compounded by the fact that there was still no legal compulsion to ensure that young people in industry were educated.

Although this start had been made, Abbott (1933) comments that the state was still not prepared to adequately fund technical education. Companies were still not convinced at this time of the relevance of further education for their staff, and preferred to train for particular job specific tasks. In 1905 Trade Schools, later called Junior Technical Schools, were started and they prepared pupils of 13 years plus for artisan or other industrial occupations. By 1913 there were 37 of these schools with nearly 3,000 pupils. These schools did not flourish throughout the country even though the 1918 Education Act raised the school leaving age to 14 (Argles, 1964).

None of these developments made any great impression on the overall position of general and technical education. In most cases the level of work was elementary, and the attendance by students poor as most of the technical instruction was in the evenings. This exacerbated the problem of motivation and gave an attendance rate of 50% for men and 61% for women (Sadler, 1904). The problem of evening only courses was not addressed until the 1950s

The Board of Education conducted a survey of technical and further education and published the results in 1926 (HMSO, 1926). The survey severely criticised the standard of buildings in colleges throughout the country, including common rooms, libraries, general

teaching rooms and laboratories. During this period the Malcolm committee was set up to review education and industry. The committee found that what industry required from school leavers were good skills in the general knowledge of technology and an adaptability to be able to cope with innovations, rather than a specialised vocational training. This requirement has been repeated consistently by employers to the present.

The number of students who were studying on a day release basis was rising. There were 26,296 students on part-time courses in 1932/33 and this increased to 41,539 by 1937/8 (Argles, 1964). There was still, at this time, no compulsion on firms to formally train young workers, which is reflected in the low numbers quoted above. It was clear that companies still thought that the education their workers were participating in at the time was largely irrelevant to the needs of companies. (Cotgrove, 1958). The Balfour Committee, (HMSO, 1927), said that "until industry discovered and made known its industrial requirements little progress could be made." Michael Argles (1964) said that "industry was still suffering from the same disease it had in the nineteenth century - unimaginative management". This was in the face of stiff competition from countries abroad, like the United States and Germany, who trained and educated their employees more successfully.

- **General and Technical Education after the Second World War**

There was a realisation by the war time national government that national provision for children and young people was inadequate for the coming time of peace, and this led to the White Paper of 1943, Educational Reconstruction. In this paper reform of the provision of technical education was shown to be necessary, as the United Kingdom's standards of education were far behind that of other countries who were competitors in world markets

(HMSO, 1943). Immediately after the war the population was largely static, so that there was no extra manpower. This meant that productivity and, therefore, training became all important if the economy was to grow successfully and living standards to rise. In particular the export market became vital to this end.

The Education Act was passed in 1944, and gave a duty to local education authorities to provide further education for those who wanted it. This Act of Parliament stimulated the growth in Further Education. The Board of Education was re-formed into the Ministry of Education, and in 1947 the Ministry published a report outlining the future of further education (Ministry of Education, 1947). The report emphasised that for the country to be competitive in world markets it was necessary to provide a comprehensive and cohesive system of education and spelled out the need for industry and the providers of education to co-operate in providing appropriate vocational education.

A major recommendation was to move away from provision of technical education almost exclusively in the evening to a day-release provision. This was to improve the success of students as day-release was thought to be more appropriate for working students. By 1950 the numbers of part-time day release students had risen from 170,000 in 1947 to 240,000, a 41% rise. At the same time as the provision of education below graduate level was being examined the Government set up a committee in 1944 to consider the needs of higher technological education under the chairmanship of Lord Eustace Percy of the University of Durham. The Percy Report was published in 1945, (HMSO, 1945), and this report also stated that the position of the United Kingdom as a leading industrial nation was being endangered, in part, by deficiencies in education. This deficiency was both in quantity and

quality of students, particularly in the field of applying research to the development of commercial products.

The Percy report recommended that some technical colleges should develop courses leading to degree qualifications, and that Regional Advisory Councils should be set up for all areas in England and Wales and these councils should co-ordinate technological studies in technical colleges and universities. In 1947 the Regional Advisory Councils were founded.

In 1956 the Government published a White Paper on Technical Education (HMSO, 1956), which contained a comment from Sir Anthony Eden to the effect that the countries with the best systems of education will be the most successful in the second half of the twentieth century. One of the main problems facing education in this country was the poor facilities in schools and colleges, exacerbated by the large influx of ex-servicemen wanting to improve their education. The White Paper set out three categories of workers in British Industry: Technologists, who would be educated to degree or HNC level, Technicians, normally educated to ONC or City and Guilds Full certificates and Craftsmen, educated to City and Guilds intermediate certificate. The White Paper also reviewed the number of technical college students in England and Wales, and found that the number of students had risen from 1.2 million in 1937 to 2 million in 1954. The paper did not, however, suggest any statutory compulsion on employers to educate their workers.

The proposals were that there should be four categories of college: 1. Local colleges, to undertake courses (usually part-time) up to ONC level. 2. Area colleges, these were to

teach ONC courses with some advanced work at HNC level with some full-time and sandwich courses. 3. Regional colleges who would have a larger number of full-time students at advanced level. 4. Colleges of Advanced Technology who would teach mostly full-time advanced work and would do research work as well.

Chapter 1 of the Paper dealt with secondary schools. At this time Modern Schools took 75% of the age group, Grammar Schools 20% and Technical Schools 5%. There were only about 340 Technical Schools in the country, and some of these were the old Junior Technical Schools mentioned earlier. They had developed in an uneven way, and some LEAs did not have any at all. The pupils at these schools, who were selected through the 11 plus, tended to be at the lower end of the band of selected pupils, irrespective of any supposed technical aptitude. The Technical School pupils studied Modern Languages, Science, Engineering and Commerce. Michael Argles states in his book that some Technical Schools did an excellent job (Argles, 1964), but overall this type of school was not successful because of the low numbers of available places nationally. The problem with Technical Schools was the fact that technical education was held in low esteem compared to academic courses, and most young people and their parents would opt for the academic A Level route if possible.

In 1959 the Crowther report was published (HMSO, 1959) and detailed the defects of technical education at the time. These included a lack of integration between schools and colleges, and drew attention to the fact that only 12% of young people in the age group 16 to 18 were engaged in full-time education. The report suggested a minimum figure of 50% for young people staying on in education. The report also detailed the worrying failure

rates of students studying for part-time qualifications. Less than 10% of students completed the whole of the National Certificate route from Ordinary to Higher, and that only about 3.5% completed them in the normal time span of 4 years. Even when the results of the ONC/D were examined by themselves the pass rates were low; in 1968 33% of those who were registered for the qualifications did not complete the examinations, and only 41% of those registered passed (Venables, 1974). Many stopped after reaching the ONC, having been put off by the pressure placed upon them (Argles, 1964).

Most of the technical education at this time was on day-release and was an advantage over the earlier evening only classes from the students' point of view. The problem was that of a very poor success rate, which hadn't improved. The results of a study in the midlands showed that the percentage of students passing the courses at the first attempt was 10% (Venables, 1974), which correlated with the official figures contained within the Crowther Report (HMSO, 1959). This was mainly because a student failing one examination had to repeat the whole year again, even if the results from the other examinations were good. This meant a large number of students repeating subjects they had passed, and taking extra years to complete the course.

When income levels were looked at (Aldcroft, 1992) in the 1960s and 70s it was found that there was a correlation between literacy levels in the world and income levels. Where literacy levels were high, as in Europe and North America, the per capita income was very much higher. The per capita income was roughly twice as much in the USA as Europe, although literacy rates were the same. This indicated the importance of the productivity of industry, and led economists to believe that effective education and training were as

important as literacy levels if workers would become more productive (Aldcroft, 1992). At this time around 80% of young people left full time education at the age of 15 or 16 and there was little vocational training, apart from college based ONCs and City and Guilds courses.

In a bid to rationalise vocational education the Haslegrave committee (HMSO, 1969) was set up in 1967. The committee reported in 1969 and recommended the setting up of two councils, the Technician Education Council and the Business Education Council (TEC and BEC). These councils awarded qualifications called TEC or BEC National and Higher National Certificates and Diplomas, which replaced the Joint Board ONCs and IINCs and the higher level City and Guilds Courses. More detail about TEC and BTEC is included in the engineering section of this chapter.

In the 1980s the government did try to address the issue of technical education by bringing in initiatives within the schools system. The Government had indicated in the New Training Initiative (NTI) White Paper (DE, 1981) that the need for a better educated and adaptable workforce to cope with new technology and for industry to become more productive was paramount. In 1983 David Young, the Chairman of the Manpower Services Commission (MSC), wrote to all the LEAs in England Wales setting out the objectives for the Technical and Vocational Educational Initiative (TVEI). The main thrust of the initiative was to prepare young people for the world of work, and to make them adapt to the changing occupational environment (Young, 1983). There was also at this time sustained criticism of the 14-16 curriculum, with young people leaving school with unsatisfactory basic skills, particularly skills in IT. There was a need for a balance between General and Vocational Education to

(Ref.) *

enable the lack of basic skills to be addressed (Lee, 1996).

The Technical and Vocational Educational Initiative (TVEI) was introduced in 1984, with the rationale that it would contribute to the improvement of the United Kingdom's economic performance (Senker, 1986). The TVEI was intended to increase pupils participation in technology and the world of work, by bridging the strict subject boundaries that existed in schools.

It was intended that the TVEI would bring about a flexible workforce, rather like the system in Japan which was held up as a model of how flexibility can improve the success of a company. But when the system of education was looked at, Japanese firms employed young people because of their attitude and their level of general education, not technical education (Senker, 1986). Another problem for British firms was that if they were to spend a lot of money on training a young person, he or she may leave the company. In Japan employees tend to stay in their company for life, and there was a large investment in employee training, which Japanese companies view as being very important (Ball, 1980).

Because the Government was convinced that the main factor in the decline of the United Kingdom's competitiveness over the years was the failure of technical education (Moon and Richardson, 1984), it put great store by the TVEI. The TVEI did not have the result that the Government was hoping for, as the VET system in Britain did not readily fit in with the idea of a flexible, adaptable workforce. This was mainly because of demarcation difficulties in industry that were still in place because of the confrontational way in which industrial relations were carried out in this country, with strict criteria as to who did what. As this was

the case, the TVEI did not make any real difference in the provision of a flexible workforce as the industrial relations system remained the same.

A report on the pilot TVEI courses showed that the time in the pilot schools spent on technical subjects only increased by a small amount, at best approximately 4% in CDT. The other subjects that did increase in time was Business Studies and IT (Harrison, 1989). Peter Senker (1986) came to the view that the TVEI's stated aim to provide a recognised national qualification would be a route to economic success had failed. In fact Britain's more successful competitor nations educated their schoolchildren in conventional subjects, with an emphasis on mathematics and science. Another factor is that at a time of reduced funding for mainstream schools the money received from the TVEI was often used in a schools general budget, and provided capital items like computer systems, rather than the original objective of preparing pupils for work. The TVEI did not change the fact that in schools the most able pupils followed an academic route, GCEs and A Levels, and it was generally thought that the vocational route was second best.

The government's desire to improve vocational education at 17+ resulted in a new qualification piloted in 1984, the Certificate in Pre-Vocational Education (CPVE). This was introduced under the auspices of a General Council and the awarding bodies CGLI and BTEC, and was an attempt to attract young people into vocational education. It was mainly undertaken in Further Education Colleges in a variety of vocational areas. It was designed to give a broad programme in general education, but with an emphasis on practical applications in a vocational area. It was also designed to develop personal attributes, such as self-motivation, responsibility, adaptability, working with others and skills in looking for

work. (Farley, 1985).

The pilot phase of the CPVE was evaluated by the Further Education Unit (FEU) and a report was published in 1985 (FEU, 1985). It found that in half the pilot centres the students had no real choice in the curriculum, apart from their main vocational area. The course also involved much assignment work with limited scope for practical work. Students were critical about inadequate planning, and it was clear that the CPVE was fitted in around existing provision. Colleges viewed it as a way of generating new students and therefore funding. Another major problem was the drop out which in some cases amounted to 40%. The colleges claimed, however, that some of this was students gaining employment. It was clear that most of the students enrolled to the CPVE were at the lower ability range, with most of the higher ability range students still opting for the more academic GCE 'O' and 'A' Levels.

BTEC, at this time, did not have a lower level qualification like the CPVE, and was concerned at the possibility of losing students who would start the CPVE and continue with it rather than join BTEC programmes. To counter this, BTEC launched the BTEC First programmes, both Certificate and Diploma, in 1986. The Certificate was primarily a part-time course and the Diploma a full-time course, and both courses were designed to last one year. The students who were attracted to the BTEC Firsts were, in the main, hoping to carry on with their studies to join the National Certificate and Diploma courses, which the First programmes were an entry qualification for. This effectively killed off the CPVE because many of the full-time students who could have studied for the CPVE opted instead for the First Diploma and the BTEC name, which had greater credibility.

In 1984 a new general qualification at 16 was introduced, the General Certificate of Secondary Education (GCSE), to replace the GCE 'O' Level and the Certificate of Secondary Education (CSE). The reasoning behind this change was to move away from examinations at the end of a two year period and introduce continuous assessment, usually in the form of course work. Another aim was to avoid young people 'failing' by giving them a grade in the GCSE, but this has not succeeded in the sense that the general public think in terms of a pass at GCSE to be Grade C or above, and therefore equivalent to a GCE pass. The vast majority of school leavers do achieve some success at GCSE and receive certificates.

The first cohort of GCSE youngsters graduated in 1988, and the GCSE continues to be the main qualification taken at 16 today. The introduction of the National Curriculum after the Education Reform Act of 1988 meant that the government could specify more directly what young people studied. At GCSE this meant that large numbers studied Design and Technology, with a similar aim to that of the TVET. Again the result was very limited, as there was a shortage of staff who were directly trained in technology based subjects. City Technical Colleges, also introduced at this time, were supposed to be the big change in education, with business providing funds to help educate their future workers. Only a handful were set up as the business community was wary of getting involved.

In 1992 the GNVQ was introduced as an educational qualification. The GNVQ is an outcomes based qualification, and I shall examine this in detail in Chapter 5, The Development of Competence Based Education.

2. Vocational Education and Training in Work-Place Settings

This section will contain the history of VET over the following periods:

- The system of training up to the beginning of the 20th Century, including apprenticeships:
- Training developments during the first half of the 20th Century:
- Training after the Second World War.

- **The System of Training to the beginning of the Twentieth Century**

At the time of the Industrial Revolution the State, in this country, would not have considered that it had a role in training the workforce, due the philosophy of the free market and laissez faire (Sheldrake and Vickerstaffe, 1987). In 1776 Adam Smith, in the “Wealth of Nations”, said that the provision of a labour force with improved skills in science and technology would lead to greater productivity and, therefore, to economic growth. This view was also stressed by John Stuart Mill who said that effective education and training was essential if industrial production was to grow through productivity (Musson, 1972). At the end of the 18th Century poor families were unable to pay for educating their children, which meant that new workers were, in the main, poorly educated and barely literate (West, 1975). At this time there was a large pool of cheap, available labour and employers had been able to recruit this labour easily.

The traditional route to being a trained and qualified craftsman in this country was through an apprenticeship. Apprenticeships had been under the control of masters, through chartered companies. The companies set the terms of the apprenticeship, including wages and the number of apprentices a master could oversee (Clarke, 1996). An apprentice was

legally regulated by the 1349 Statute of Labourers in terms of his wages, and further regulations, including contracts of service, came from the Statute of Artificers in 1562. By the time of the Industrial Revolution many of the new trades were not covered by the statute, and so apprenticeships were not available for much of the workforce (Bailey, 1996). It is clear that at this time voluntarism was the accepted model for training, that industry itself would create the most applicable training system for its needs.

The Statute of 1562 was repealed in 1814 because by then many of those who were employed in industry did not come under the regulations, and Justices of the Peace were no longer playing any role in fixing wages under the Statute. The consensus of the day was that relations between employers and employees concerning wages and conditions should be determined by market forces and not by law (Clarke, 1996).

By the middle of the 19th Century there was little or no technical education in the United Kingdom. Technology at this time was thought to be only for the lower classes, and was therefore ignored as being irrelevant to the thinking man. The only education available was at the Institutes started in 1800 by the Professor of Natural Philosophy and Chemistry at Glasgow, George Birkbeck, who began classes in the scientific principles underlying the artisan trades. Due to this success, Institutes were opened around the country. By 1850 there were 610 institutes in England and Wales, with a membership exceeding half a million. The education that they gave, however, was not the vocational education that was necessary and the level of education within the institutes was too high for the vast majority of the working population to achieve. This was due to the lack of a universal primary education for the population and so people attending were mainly from the middle classes

(Argles, 1964). The main point here is that the education for workers in engineering was not actually available.

At the Great Exhibition in 1851 which was housed in the Crystal Palace in Hyde Park, was a large display of craftsmanship and industrial manufactured goods from around the world. Great Britain won most of the prizes, but it was obvious that the other countries were also performing well. This was emphasised by the results of the international exhibition held in Paris in 1867 which gave only a small number of prizes to the British. The trend continued as after 1875 Germany and the United States outstripped Great Britain in industrial capacity, and gave an added impetus to the improvement of education and training generally in this country.

This problem was addressed by the City and Guilds of London, which became involved in technical education by 1879. The City and Guilds of London Institute was incorporated in 1880 after the City of London Livery Companies resolved to promote technical education, both in London and the provinces. This was to be for young artisans to enable them to receive education and training so that they could become qualified in their trades. By 1900 there were 64 subjects and 14,105 students passing technical and trade training validated by the CGLI. Whilst this figure looks large, 14,000 students was a very small percentage of the cohort that needed training in industry. This was happening at a time of growth of industry in the latter half of the nineteenth century, which can be illustrated by the rise in steel production from 250,000 tons in 1870 to 7.5 million tons in 1913. In addition to this new industries were being born which included the electrical industry (Argles, 1964).

In 1889 the Technical Instruction Act was passed, which enabled local authorities to raise a penny rate in support of technical instruction, and by 1898 all counties and county boroughs in England had adopted it and were raising sums of up to £39,000 for technical education. In addition to the 1889 Act, another Act in 1890 provided the opportunity of using money raised by Customs and Excise to be used for technical education, which provided a large, much needed source of revenue. Even with the new resources being provided, by the end of the century there was still nationally an unfulfilled need for technical education for the workers in industry.

- **Industrial Training during the first half of the Twentieth Century**

In 1914 it was estimated that only a small number of the male population was getting any sort of formal trade instruction, usually in night school (Gospel, 1995). Most of the instruction that was given, to approximately 7% of the male population, consisted of the scientific principles on which the processes were based, rather than instruction in how to carry out specific job tasks (Ryrie and Weir, 1978). At the start of the First World War there was an increase in the requirement for skilled workers to work in the factories providing the equipment for war. The traditional methods of training were not adequate for providing skilled workers quickly for the national priority of fighting a world war with modern equipment (Currie, 1920). The government became involved in training for the first time and the Ministry of Munitions provided training schemes to supply the skilled workers industry required.

After the war there was a need to provide training for the thousands of disabled ex-servicemen, and the Ministry of Labour set up training schemes for them. By 1918 the

pattern for training had been fixed. This was mainly in the form of experience in industry, with part-time evening instruction in colleges. The main changes during the period up to the second world war were the changes in education. Training was still largely left to individual companies to carry out, and this was mainly for the benefit of the company and its production requirements.

At this time government policy was that training should be left to industry itself, apart from schemes to help the unemployed (Sheldrake and Vickerstaffe, 1987). During the time of mass unemployment the government set up training schemes, and these were financed by the treasury (Davison, 1938). The Government Training Centres provided training and preparation for employment for unemployed workers. The main problem was, though, a lack of jobs in industry for the large number of unemployed men after they had received their training.

During the second world war things marked time (Argles, 1964). The priority for the country was the production of material for the war effort, and most of the young men ended up in the forces. There was at this time the start of a major technological change in industry, with the development of electronics and then computers. Skilled engineers and technicians were required to develop these new areas and, therefore, the wealth of the nation after the war was over.

- **The state of training after the Second World War**

After the war the government was concerned with the issues of demobilisation and youth training. There were government training centres for returning servicemen, but by 1948

the numbers were dwindling (Sheldrake and Vickerstaffe, 1987). In 1948 the Employment and Training Act provided the Juvenile Employment Service, but there was no further developments in training for skills (Perry, 1976).

In a report in 1952 the Ministry of Labour and National Service (MLNS) said that employers should bear the major responsibility for training their workforces (MLNS, 1952). During the 1950s there was a shortage of skilled workers in engineering, and the report noted that since 1945 seventy industries, or sections of industries, had adopted nationally agreed training provisions, but that the implementation of these locally was not extensive. It was found that there was a lack of knowledge locally about the national schemes (Central Youth Employment Agency, 1953), and the lack of skilled workers was not being properly addressed.

It was still the policy that training was the prerogative of both sides of industry, the unions and the employers, and the government role was that of an advisor. There were agreements concerning the conditions of employment for young people, but there was still no national scheme or standards of training for them. Most of the apprentices were given day-release for college courses, and this was seen as the main condition for passing or failing the apprenticeship. In a review of the routes of entry to the engineering profession in 1950 (Ryley, 1950), there was little mention of vocational training, only vague references to “workshop training”. The key was the type of education that a person followed over a period of years. The 1950s was a time of nearly full employment, and the government’s role diminished to that of the people on the margins of labour provision, youth, the unemployed and the disabled (Sheldrake and Vickerstaffe, 1987).

The Minister of Labour set up the Carr Report to investigate the state of the national training effort. This committee published its report in February 1958 (MLNS, 1958), but had great difficulty in obtaining real information as there was an almost complete lack of statistics (Perry, 1976). The report detailed the problems that existed with technical training in the United Kingdom. By 1962 there was going to be a 50% increase in the number of 15 year olds, and these young people would need training for employment. This meant that the existing apprenticeship facilities were inadequate both in quality and quantity.

The report did make the suggestion that the current system could provide the basis for a training system, but would need amendments and improvements. There was also a proposal to set up a voluntary National Apprenticeship Council which would gain an overall picture of training in the country (MLNS, 1958), and also that day-release should be encouraged for all trainees. The report still recommended keeping to the voluntary system that existed, and that there should be no statutory requirement to train.

By 1962 the Government was beginning to change its mind about introducing statutory requirements for training, as the voluntarist approach had not provided enough skilled workers. It was accepted that if the country wanted to compete successfully in the world changes were needed (Sheldrake and Vickerstaffe, 1987). This would ensure that workers in industry acquired the appropriate skills to make industry competitive in world markets. This was particularly important in the areas of high technology, such as the growing electronics sector where there was a shortage of trained engineers.

- **The Industrial Training Act**

The main criticisms about the traditional training schemes were that they were exclusive, being restricted in the main to young males (Gospel, 1995). There was no standard for training, apart from the day-release element where students studied for City and Guilds Qualifications or the ONC. The British Association for Commercial and Industrial Training (BACIE) had been arguing for a more positive training policy for some time, and held a conference in 1962 (BACIE, 1962). The Minister for Labour addressed the conference and said that there was an urgent need to review training policy. It was suggested by the report (BACIE, 1962) that a compulsory Apprentice Authority be established for all major industries.

At this time it was acknowledged that skills shortages were a brake on the expansion of the economy. Flexibility in the labour market could be achieved by individual employers in the form of retraining, but this was an ineffective way to manage the labour supply as it didn't address the larger issue of skill shortages. Industry itself was beginning to understand that change was necessary, and that voluntarism had failed (Sheldrake and Vickerstaffe, 1987).

A White Paper, "Industrial Training: Government Proposals" (Ministry of Labour (ML), 1962) was published and made some startling recommendations. These marked the change from a laissez faire method of training to a statutory controlled one. The reasons for this were that, at best, the training in this country was excellent but that at worst it was very bad (ML, 1962). The White Paper made the important link between economic growth and the level of industrial training, and the need for economic planning in industry. The White

Paper proposed a compulsory levy system that would ensure that all companies contributed to the cost of training the personnel so necessary for the country.

There was no overtly hostile reactions to the White Paper (Sheldrake and Vickerstaffe, 1987), but both employers and unions wanted any law to have a different emphasis. The employers (British Employers Confederation (BEC), 1963) wanted the law to state general outlines for the training boards and that employers should have the majority of places on the boards. The TUC wanted a central governing body with power to oversee the boards (Ministry of Labour Gazette, 1963).

The Industrial Training Act was passed in 1964 and under this the Industrial Training Boards were set up. All firms with an annual payroll of 5,000 or more had to pay a 2.5% levy. Firms could recoup part or all the levy in the form of grants, but only if they carried out training in accordance with the Training Board's specification.

The Industrial Training Act received universal support in Parliament but there was some criticism of the Act after it was passed. It was suggested that the Act would not solve the problems in the way that the Government hoped (Becker, 1964). The philosophy of the Act was questioned, also the way the Act was implemented. In terms of the philosophy, one of the main reasons for the Act was the premise that firms were "poaching" trained personnel. This was refuted in that as the costs of training were passed onto employees in the form of lower wages, if the trainees changed jobs this did not represent a loss to the firm. This was particularly true in the case of third and fourth year trainees who, whilst paid less, contributed a significant amount of labour to the company (Becker, 1964)

It was also argued that the Act did not in fact provide additional funds for training, but that it merely reallocated resources that already existed (Lees and Chiplin, 1970). The carrot and stick principle of the levy and grants would be self defeating over time as standards rose and the levy was cancelled out by the grants, minus the administration costs. The levy would provide a once and for all improvement in training but there would be no further development as there was no new money. Employers were concerned at the amount of power resting in the hands of Whitehall (MacDonald, 1969) and the amount of paperwork involved in supplying returns to the ITBs.

The Act tried to create a national framework for training policy, and to bring these issues into the field of economic policy. As I stated earlier there was an economic need to make industry competitive on a world scale. The problems were that the Act, with the ITBs, still concentrated on industry wide skills, not cross-sector transferable skills (Vickerstaffe, 1985). From an economic point of view this meant that firms only examined their immediate needs in terms of training, without much planning for the future. The Central Training Council (CTC) set up by the Act only had advisory powers, so there was no statutory direction for training in the country as a whole. The ITBs were only concerned with their own industry, and in effect neither the government or industry had really moved from the existing voluntarism (Stringer and Richardson, 1982).

The CBI issued a review of the workings of the Act, and said that it could provide a base for future strategy, but with amendments to help small firms. They were asking for changes to the system, not abandonment (CBI, 1971). A committee of Inquiry on small

firms in 1971 stated that the system of training under the Act was inappropriate for small firms, and that the ITBs should exempt them from the levy/grant system (Committee of Inquiry on Small Firms, 1971). This was followed by the Secretary of State saying that he expected more small firms to be exempted from the levy (Sheldrake and Vickerstaffe, 1987).

What did happen in the early 1970s was the ITBs were overtaken by events largely out of their control, and this led to the other training initiatives outlined below.

- **The Training Schemes of the Manpower Services Commission**

The main reason for firms declining to train in the 1970s was the state of the economy. During recession and downturns one of the easiest ways to cut costs is to cut back on training. This can be seen in the figures for the percentage of trainees to total employees in manufacturing industry. In 1970 this percentage was 5.0% and by 1975 this had dropped to 4.5%, which over industry as a whole was a large reduction of about 10% of the trainees (Department of Employment, 1971 and 1976).

By the 1970s there was increasing pressure for employers to train to standards (Senker, 1992), as the government had become extremely concerned about the fact that British training had fallen behind that of continental Europe. In Germany, for example, it was, and still is, illegal to employ a young person under the age of eighteen years without providing recognised training. In 1972 the Government produced a consultative document "Training for the Future" (Department of Employment, 1972) which detailed developments that the Government thought was necessary for the health of the nation's economy and this led to

the Employment and Training Act 1973. Under this Act the Manpower Services Commission (MSC) was set up to ensure that there was a coherent policy for training in the country.

The MSC also became responsible for the funding of public training in the country, and so became a very powerful body. By the mid 1970s unemployment was rising in the country due to the economic problems faced world wide, mainly due to the oil crisis of 1974. The unemployment rate of young people was particularly worrying for the Government, and so a working party of the MSC was set up under Geoffrey Holland to look at the possibilities of providing a training scheme for all school leavers who wanted work, other than the limited numbers of young people who were trained under the Industrial Training Act (Haxby, 1995).

The result was the introduction of the Youth Opportunities Programme (YOP) which started in April 1978, and was originally planned to be a five year temporary programme. Under the scheme trainees were paid an allowance and proved to be fairly popular in the early years, with approximately 80% of those leaving the scheme obtaining employment after graduation (Short, 1986). As the scheme progressed, however, there were an increasing number of criticisms, particularly about the allowance which remained pegged at the original sum of £23.50. Another very important criticism was that employers were taking young people onto the scheme in the place of full-time employees (Chapman and Tooze, 1987) and then replacing these by other trainees at the end of the training period. Soon after the election of a conservative government in 1979 the MSC announced a cut in funding (Department of Employment News 1979, No. 63) and announced a review of the

1973 Act. At this time, despite the large number of YOP trainees, youth unemployment was still a political problem (Lindlay, 1981).

As far as training went only about 20% of YOP trainees received off-the-job training in 1981, which did nothing to help the overall provision of well trained people to improve the state of the nation's economy. The unemployment rate of YOP graduates increased from 13% in 1978 to 48% by 1980. So far from providing trained employees the scheme was only useful in the short term to alleviate the youth unemployment problem (Greaves, Gostyn and Bonsall, 1982). In reaction to this type of criticism the MSC issued a consultative document "A New Training Initiative" in 1981 (MSC), referred to as the NTI, which looked at the problem of skill training. This led to the White Paper, A New Training Initiative - a Programme for Action (Department of Employment, 1981).

Up to this point education and training had led the way in deciding how the needs of employers can be met in terms of a trained workforce. It was hoped that after this individuals would become occupationally competent in their work, but the term competence was not fully explained. The NTI effectively turned this model on its head, and put the fact of ability to perform an occupational task first, and was concerned about the content of the training, and not just the numbers of people involved (Sheldrake and Vickerstaffe, 1987). This raising of the notion of "standards" was very much to meet the training needs of the nation to enable it to compete with its competitor nations, particularly in Europe. The system suggested changed the emphasis from inputs to outputs (Jessup, 1990).

The Youth Training Scheme (YTS) emerged from the NTI, and provided young people with a chance of on-the-job training with an allowance, plus a place on an acknowledged further education course, and came into effect in September 1983. It has been argued that the rise of the YTS and the decline of apprenticeships in the 1980s had more to do with political dogma than anything else. The Conservative government distrusted apprenticeships because of the Trades Union links, and so disbanded the ITBs in favour of other employer led organisations. In engineering the EITB was disbanded and the Engineering Training Authority (EnTRA) came into being (Gospel, 1995).

In 1986 the YTS became a two year programme, with at least 20 weeks off the job training. In year two the trainees received an increase in the allowance to allow for the age increase and a theoretical increase in productivity. In these early years YTS was well thought of by the employers, with 85% of them optimistic about the scheme and 75% being willing to participate in this new two year programme (Chapman and Tooze, 1987).

In an evaluation of the YTS a team from Sussex University showed that the schemes that were most effective were those that ran alongside recognised Further Education qualifications, e.g. BTEC and CGLI (Eraut and Burke, 1986), or were part of a scheme such as the EITB foundation training. It was found that the most effective courses were those which were apprentice type qualifications which provided narrow, more specific training that employers wanted. There was also little evidence of the integration of core skills and standardisation of performances by the trainees.

By 1986 the number of young people in full and part-time education and training was still

way below our major trading competitors, as shown in the table.

Staying on rates for 16 to 18 yrs			
Country	F/T	P/T	All
Germany	47%	43%	90%
USA	79%	1%	80%
UK	33%	31%	64%

(Steedman, 1998)

Skills shortages were still a problem, even during recessionary periods, and it was particularly difficult to obtain trained workers in the new high technology fields. Another problem for the British economy was that the productivity rates in the industry during the 1970s and early 1980s was 60% of those found in the major European economies. Finegold and Soskice (1988) stated that during this period in Britain the majority of companies worked on a low skills equilibrium, producing low quality goods and services and using employees with relatively poor skills. This view was supported by Peter Senker (Senker, 1992). The skills shortages continued into the 1990s, and these included a shortage of welders, machinists and fitters as well as workers in the electrical/electronics fields. This was particularly bad during the boom in the late 1980s, and helped to increase wage inflation as the market became an employees market.

By 1990 the full-time staying on rates improved in Britain to 58%, and 65% by 1992 (DES, 1993). This was, however, still way below that of major competitors. The ideology was still that the government should not be directly involved with training, that industry itself should be responsible for training its workforce. This ideology led to the implementation of the Training and Enterprise Councils (TECs) during the early 1990s. These are run by employers on the assumption that they know best what training is needed for their companies. The idea was that they would motivate managers and cajole

employers into a better regime of training (Senker, 1992). During the early 1990s the main vehicle for training was the implementation of NVQs, which will be addressed in Chapter 3.

3. Vocational Education and Training for the Engineering Industry

Whilst most of the developments in training policy were common to all parts of the economy, there were particular aspects of training policy that concerned the engineering industry. As this study is concerned with Engineering GNVQs, this section deals with the specifics concerning the industry. The first part deals with Technical Education, found mainly in technical colleges, the second deals with apprenticeships in which young people were taught vocational skills, and third gives details about the Engineering Industry Training Board.

- **Engineering Technical Education**

Before the 20th Century there was no Technical Education as such. It wasn't until after the first world war that specialised technical education was made available. The most important development in technical education during the first half of the twentieth century was the introduction of Engineering National Certificates, Ordinary and Higher, for part-time students and Diplomas for full-time students in 1921. These qualifications were to continue, in one form or another, until today. These were nationally recognised qualifications, and were a joint award by the Board of Education and the Professional Institutions, such as the Institute of Mechanical Engineers. The progress, in terms of numbers, showed an increase in the years up to 1944, as shown in the table overleaf.

Number of Students			
Year	1923	1931	1944
ONC	663	2043	4070
HNC	168	749	1405

**Numbers of students studying for ONC and HNC in the Engineering sector
between 1923 and 1944**

(Argles, 1964)

As can be seen, even with large increases in participation over the years, the numbers of properly educated engineers was still very low. These qualifications resulted in a better relationship with the industry and managers of companies were involved, through the institutions, with the curriculum as well as serving on advisory and consultative committees. These courses also provided a route for engineers and technicians to progress with their training and education in a nationally recognised way. Whilst this system was encouraging, the problem was in the poor take up by both companies and students.

The Engineering National Certificates remained basically the same under the auspices of the Joint Boards, which were set up by the Engineering Institutions and Department of Education, until the introduction of BEC and TEC. The councils were set up and started operating with the authority to validate and award qualifications. This consisted, in engineering, mainly of the TEC National and Higher National Certificates and Diplomas, and were started in 1973/4. The structure of the qualifications were altered to a number of units, 10 for a National Certificate and 16 for a National Diploma. The main change was that if a unit was successfully completed the student would be awarded that unit, no matter what was achieved in other units. The time allowed for a National Award was five years, so students who could

not get complete days off could attend on a part day basis and still qualify at the end of a longer period. In 1983 the Councils were amalgamated to form the Business and Technician Education Council (BTEC) and became a major awarding body up to the present time.

- **Engineering Apprenticeships**

The training of apprentices in industry at the start of the Industrial Revolution had not really changed since the Statute of Artificers in 1513 as discussed earlier. Prior to this statute the method of training dated back to the middle ages, when each district decided on the relationships between master and apprentice (National Institute of Industrial Psychologists, 1956). The Statute of Artificers gave to training a national policy consisting of basic rules. An apprentice served under a master for seven years, and after that period of indenture the apprentice became a trained man in his own right. It was usually the case that the apprentice lived with his master until he became a journeyman, but by the middle of the 19th century this had largely died out (Gospel, 1995). This was largely due to the development of larger, more industrialised firms who had a large number of apprentices.

The master had a contractual obligation to the apprentice and his parents, with signed indentures. This apprenticeship was often the only form of education that the apprentice would have, as the sons of manual workers did not attend school (Ryrie and Weir, 1978). At this time apprenticeships were the main, although not the only means, of obtaining recognised training. (More, 1980). The quality of this training varied from trade to trade and the quality of the place of training (Sheldrake and Vickerstaffe, 1987), as there was no national system in place to check on quality of training. The apprenticeship system was under threat by technological change, particularly automated systems of production, which

made skills obsolete. Trades Unions were also involved with apprenticeships, and were on the defensive about the modernisation of industry (Hobsbawm, 1964) and the perceived threat to skills training. The Unions were also concerned about their ability to control the intake to the trades that they controlled being eroded away (Gospel, 1995). By the end of the 19th Century the rise in scientific knowledge and industrialisation led to the breaking down of apprenticeship regulations which reserved work for those officially trained (Burgess, 1975).

By the end of the nineteenth century the importance of skill, and the apprenticeship systems that provided these skills, began to be questioned (Sheldrake and Vickerstaffe, 1987). In many industries the apprenticeship system had practically gone out of use, and was largely seen as undemocratic in scope, unscientific in method and unsound financially (Webb and Webb, 1902). The only apprenticeship systems still in operation was in very specialised industries, like barge building. What existed was a kind of quasi-apprenticeship, a traineeship, where young men began as helpers and picked up the trade as best they could, but which did not give them the status of skilled people. The legal indentures that originally provided the basis for apprenticeship gave way to an informal agreement between the parties, the company and the trainee and his parents. This system continued into the twentieth century, with no major changes

Up until the middle of the twentieth Century apprenticeship and traineeships in the engineering industry continued as before with no major changes, but there were some worrying features. A study of 50 engineering firms in the Bristol area in 1960 highlighted the problems that existed (Liepmann, 1960). It was found that over 15% of the firms did

no training at all, and that there was no correlation between size of business and the number of trainees, both craft and technician, employed. The traditional way of measuring the amount of training occurring was to quote the percentage of apprentices (trainees) to trained men and the average in this survey was 7.2%. The larger firms (over one hundred employees) had a figure lower than this average, but, because of their size, employed a larger number of trainees.

An important finding from the survey was that the smaller firms in the survey did not carry out any technician training at all, and relied on "poaching" from those that did. Another problem was that there was no standard format for training within the apprenticeship and no verification of standards, other than further education qualifications, such as the ONC or CGLI certificates. These were nationally recognised qualifications, but were mainly concerned with knowledge and understanding rather than the practical skills gained with an apprenticeship. There was also no national register of apprentices, and no formal testing of practical vocational skills. The term of most apprenticeships was five years, regardless of the speed at which a trainee progressed. These were the issues that forced the government to take action and bring into force the Engineering Industrial Training Board.

- **The Engineering Industry Training Board (EITB)**

The EITB became responsible for training within the whole of the engineering industry and, for the first time ever, set up a training register where firms had to fill in a return giving details of the workforce of the firm. The EITB also introduced the off-the-job training scheme, which started in 1966. The Training Board was then able to give details of the numbers of trainees in the training scheme, important data which had never been

available before.

In 1966 there were 23,980 registered first year trainees with the EITB, and this increased to 27,539 the next year (EITB, 1966/67). From this point on, however, the numbers of trainees decreased. There were three main reasons for this decline. The first was that the industry did not need so many trained craftsmen as it had in the past because of new technology - the increased use of automation, for example. The second was that it was becoming increasingly expensive to train young people. The school leaving age was raised to 16 and, as wages had traditionally been paid in accordance with age, first year trainees were being paid more.

The third reason for the decline was that some smaller firms paid the levy, made no attempt to alter their training strategy and passed on the cost in higher prices (Tavernier, 1968). Some small firms also found that the emphasis on off the job Training was inappropriate for them, as the provision of this training was patchy over the country as a whole.

Some have suggested, however, that the EITB had aided small companies by setting up group training schemes and, therefore, enabled them train their apprentices to EITB TR23 standards. Even after the setting up of these ventures the provision of training centres was not uniform. These centres, college based and group centres, were not available at all before the Act was passed (Anderson and Fairley, 1969). This is important because the EITB brought in a system of training to standards; that if an apprentice trained under the system in one part of the country another employer in another area could rely on the

training he or she had received.

In my experience of running an EITB off the job training scheme in a college the standard reached by the trainees was very high, particularly when taken with an educational qualification as well. Employers in the area I was involved in were all highly complementary, especially those from small firms. The problem was that not all employers had access to these group training schemes, and had to rely on in house training which was moderated by the EITB training officers with day-release at college.

The Government had become very concerned and embarrassed at the rising unemployment rate and low staying on figures of young people during the 1970s. The numbers of young people in full time work registered with the EITB, after an early rise, started to decline. In 1966/67 there were a total of 122,682 trainees registered by the EITB, which dropped to 106,195 by 1969/70, following falls in the recruitment of first year trainees and natural wastage (EITB, 1970). It was generally considered in government circles that the 1964 Act had failed, in that short termism still prevailed and training was perceived to be mainly about craft skills (Sheldrake and Vickerstaffe, 1987).

The YTS scheme came at a time when the numbers of trainees entering the Engineering Industry were dropping year on year, and helped a great deal with providing training within the industry which would not have otherwise occurred. The number of trainees as a percentage of manufacturing industry employment fell as follows.

Year	Apprentices	Other Trainees	Apprentices & Other Trainees
1965	3.0%	1.8%	4.8%
1970	2.7%	2.5%	5.2%
1975	2.1%	1.8%	4.0%
1980	2.2%	1.3%	3.5%
1985	1.4%	0.7%	2.1%

The Percentage of Trainees of the total Manufacturing Workforce

(Gospel, 1995)

It can be seen that the total of trainees in manufacturing, as a percentage of the workforce, fell by nearly half in the twenty years from 1965. This was particularly worrying as, even when the numbers of employees in industry was falling, the percentage of apprentices and trainees dropped even more. This would prove to be a problem for the future when the economic climate improved (Gospel, 1995).

The EITB negotiated with the MSC to provide a foundation course for young people in the Engineering Industry under the aegis of the YTS, as did the Construction Industry Training Board (CITB), which meant that the responsibility for training remained with the Training Boards. As the scheme progressed, the number of apprentices who were also on the YTS scheme increased. This was a big help to the companies who were funding the trainees in a time of economic hardship. Without this help it is likely that the number of young people being properly trained would have dropped alarmingly and the effect would have been felt even more in the years to come. Employers used the YTS to help them train for the future as the government was helping with the training costs. At that time (the mid 1980s) it would cost approximately £3,500 per trainee for the one year off-the-job course, plus the cost of wages. If some of this cost could be paid through the YTS scheme it would help employers train young people. This was repeated in other areas of the country

(Dutton, undated).

After the YOP and YTS schemes were introduced, the EITB was involved in setting the training standards that were used. In a study in 1984 of 560 trainees on pilot YTS Engineering programmes the following findings were obtained:

Destination of Trainee	Percentage of Total Trainees
Apprenticeship in Engineering	9.8
Employment in Engineering	20.8
Other Employment	19.7
Unemployed	22.4
Unknown	27.2

Destinations of YTS trainees as a percentage

(Shinkins, 1984)

The figures showed that only about 30% of the trainees stayed in engineering (discounting the unknowns) which was a major concern for the EITB and the MSC, who was funding the programme. The fact that such a large number of people were taking a vocational course and not using the training was particularly troublesome. In another study in Coventry it was found that in 1984 59% of the engineering YTS trainees found work in the Industry, and in 1985 58% found work.

The EITB made sure that they covered the requirements of the YTS, including skills like information technology, life skills and computer literacy. This meant that the YTS could fund the first two years of a four year apprenticeship, and many employers took advantage of this boost to fund engineering training (Haxby, 1989). From the trainees point of view the YTS gave invaluable experience coupled with the chance of gaining a recognised

qualification, even if they did not obtain a job at the end of the two year period.

Another problem for the country's economic expansion was the lack of trained workers at the technician level, particularly in latter years with the explosion of technology in the workplace. To try to increase the number of trained technicians the EITB introduced a new scheme of training called the TR21 in 1986. This scheme was directly aimed at providing more technicians for industry, but even after the scheme was introduced the numbers of trained technicians still fell (see below). During the period from the mid 1980s through to the 1990s there was a decreasing number of young people with craft and technician skills, which shows up when looking at the number of people under 25 with qualifications as shown below.

Year	1985	1984	1992	1992	1995	1995	1996	1996
Country	UK	Ger	UK	Ger	UK	Ger	UK	Ger
Type								
Craft	17600	161400	11000	107800	10900	105400	11000	104000
NVQ3	n/a	n/a	3500	n/a	2700	n/a	1000	n/a
Technician	20500	n/a	17800	n/a	13500	n/a	12000	n/a
Total	38100	161400	32300	107800	27100	105400	24000	104000
% of Cohort	4.34	13.78	4.00	14.70	4.40	16.39	4.00	16.59

Under 25 Engineering Qualifications in Germany and the UK

(Steedman, 1998)

It can be seen from the above figures that, during a time of demographic decline in this age group (a 28% decrease between 1985 and 1995 in Britain), Germany (the former West Germany) had increased the percentage of young people with engineering qualifications. In Britain the percentage has remained flat, at around 4% of the cohort. Germany has always outstripped Britain in training over the years, and during the war, in 1942, Germany provided

training to nearly 100% of its workers, whereas Britain provided training for about 10% of its workers. This applied at the higher graduate level as well, with Germany producing 1,900 graduate engineers in 1939 and Britain 700 (Barnett, 1986).

Another problem for British companies has been the traditional rate of pay for apprentices/trainees. As can be seen from the table, the percentage of skilled pay a trainee may expect is much higher in Britain than in Germany.

Percentage of Skilled Pay		
Year of Training	Germany	U.K.
1	30%	50%
4	40%	95%

Pay of engineering trainees as a percentage of skilled pay in Germany and the UK

(Senker, 1992)

British companies have been reluctant to employ these expensive young people in times of economic hardship because of the cost. In Britain this had occurred because Trade Unions were involved in the negotiations for paying trainees, with the rising cost as shown. A fourth year trainee cost nearly as much as a trained worker, but will not be so productive as he or she would probably have gone to college one day a week on educational courses leading to an ONC, HNC or CGLI certificates.

The problem of trained technicians still persisted into the mid 1990s, although EMTA have stated (Interview, 1998) that the number of trainees registered for training at the technician level has increased in 1997 and 1998, whereas training at semi-skilled level and craft level has declined. When looking at the table on page 52 the total of trained personnel at the technician level had decreased whilst NVQ level 3 training remained very low. The craft numbers referred to in the chart refers to the number of young people with

the NVQ level 2 qualification, as the EMTA craft training now follows this route rather than the craft scheme originally started after the Industrial Training Act. The number of people with craft or NVQ2 qualifications fell sharply from the mid 1980s until the early 1990s, but then has remained static. The key point when looking at the figures is that the total number of trained personnel in the Engineering Industry continued to fall into the late 1990s.

4. Conclusions

Examining the development of education and training in the United Kingdom has shown that the state was not involved until late into the nineteenth century, and it was largely left to local areas to respond to the population's educational needs. This meant that there was no national standards for education, and provision was variable as there was no legal compulsion for people to educate their children. The competitor nations of the United Kingdom were starting to spend more of the national wealth on education, whilst this country was not.

There has been a recurring theme throughout the history of training of the continued reluctance of employers to fund the training of young people. It was not thought important to train, as there was a large pool of labour for employers to call upon. It was not until the start of the 20th Century that a national system of education was formed, which meant that there was a more coherent policy for the whole country. As far as vocational training was concerned, there was no major attempt to train young people, apart from technical education with the introduction of the Ordinary and Higher National Certificates and the use of the CGLI courses which continue today. These qualifications are, in my view, very

important in engineering and allow young people to study part-time and gain a nationally recognised qualification that is well thought of by employers. It was not until after the second world war that the problems of vocational training were addressed with the introduction of the Industrial Training Boards.

In a time of comparative economic decline and low growth, the poor record in training of the United Kingdom continued, and became a problem particularly in the late 1960s and 1970s which the ITBs did not really address. This was the problem facing the government in the 1970s, and the responses to this have been detailed above. The government initiatives have shown the uncertainty that was prevalent at the time, in that it went from an interventionist approach, from 1964, to a freer market led approach which encouraged firms to train appropriately, with government funding, from the early 1980s. The reason for this was to provide, in theory, greater responsiveness to market forces with a greater mobility of trainee and trained workers.

Examining the history of vocational training has highlighted the decline of apprenticeships, particularly over the last twenty years, and the system has been replaced by an increasingly mixed system. In the engineering industry there is a need for technically trained personnel to cope with the new technologies. The system of apprenticeships did not provide this, in that they tended to stick to the "old" trades, and companies still saw that it was important to train to the traditional skills. This even happened when they required technicians as some companies still insisted that their trainees cover the traditional crafts, such as milling and turning, even whilst studying for technician qualifications, ONCs and HNCs. I have shown above that the numbers in training in

industry has declined substantially over the last thirty years, and it is now very important that higher educational standards be gained by technicians in industry, to enable them to cope with the rapid change in engineering disciplines.

Throughout this time there was a distinction between education and training, which were historically entrenched. Initiatives from the education lobby did not make much inroad into the training policy community (Stringer and Richardson, 1982), and educational qualifications were always more highly regarded. Trainees regarded vocational qualifications as second best compared with the higher status academic courses. Even when it would have been inappropriate, an academic route would often be chosen by both employer and trainee. It was clear that the voluntarism that existed had not worked on a national basis, and eventually the government started to create a national Vocational and Educational Training system.

One of the reasons over the years for the reluctance of the state to intervene in education and training is the desire to have a flexible workforce, particularly in the last twenty or thirty years, that is prepared to change working practices and move to where the work is. This model is based upon the United States rather than the rest of Europe, where there are more rules and regulations concerning employment. This has resulted in some success, with more inward investment from outside the European Union to this country than any other. The changes in training methodology mean that there are now more workers gaining nationally recognised qualifications than ever before, particularly in areas such as catering and the health service, where NVQs have been developed in areas where no qualifications existed previously. In the engineering industry the number of young people with

qualifications still fell, and this still remains a major problem today.

I have shown the historical context of education and training in the United Kingdom in this chapter, particularly the major changes in education and training provision over the last thirty years. The next chapter will chart the rise of competence based training, the setting up of the National Council for Vocational Qualifications (NCVQ), which led to National Vocational Qualifications (NVQs) and the introduction of the General National Vocational Qualification (GNVQ).

Chapter 4 - The Development of Competence Based Education and Training in the United Kingdom

This chapter will examine the introduction of competence based education and training (CBET) schemes, which commenced in the mid 1980s. At this time there was a continuing need for technically competent workers in industry which was still showing a shortfall in certain skills. Up until this time the schemes the government had introduced were, in the main, politically driven in the need to tackle rising youth unemployment (Gospel, 1995), particularly in the late 1970s and early 1980s. It was necessary for young people to obtain skills for the economic success of the nation, but the political priority had been to tackle youth unemployment (Raggatt and Williams, 1999).

The government's reforms in the 1980s and early 1990s were justified by the belief that any improvement in the United Kingdom's economic performance would be driven by better vocational training. The idea of a global economy had worried politicians about competition, and they latched onto these reforms to provide the training that the country required to become successful (Wolf, 1999).

This chapter will discuss the background to;

1. The introduction of CBET, the definition of competence and the position regarding knowledge and understanding within competence;
2. The formation of the National Council for Vocational Qualification (NCVQ) and the introduction of National Vocational Qualifications (NVQs), following the De Ville report in 1986 (DES, MSC, 1986);

3. **The Formulation and Introduction of the GNVQ.** This last item is particularly important as this qualification is the focus of my thesis.
4. **Conclusion**

The early pilots of the GNVQ were similar in construction to the NVQs which were based upon the notion of competence and outcomes. Competence based schemes had been used in some parts of the world for some time, but it was only from the mid 1980s that these schemes became popular with the politicians in this country who would propose implementing them. It is important, firstly, to examine how competence based schemes began to be proposed for Vocational Education and Training (VET) in this country.

1. The introduction of CBET

- **Background to the introduction of Competence Based Schemes**

The origins of competence based education can be traced back to the 1920s in the USA to the ideas of educational reform linked to business models using behavioural objectives. It was in the 1960s, however, that the movement really took hold following a demand for greater accountability for education in the USA. There were also calls for a greater relevance in teacher education, together with calls for large investments of federal money to allow this to happen (Burke, 1989).

There has been a close relationship between economic recession and the demands for a properly trained workforce over the years (Raggatt, 1997), and during the world recession in the mid 1970s this was particularly true. All countries wanted a competitive edge to

improve their economies, and the provision of a properly trained workforce was essential for this to happen. After the election of Margaret Thatcher as leader of the Conservative Party in the mid 1970s there was a struggle for the prominence of competence based schemes, (Marsh, 1995) which was created by the 'new right' (Jones and Moore, 1995). In this scenario education should be part of a system that provided trained employees who would satisfy industry's needs for the economic success of the country. Also at this time there was concern felt by civil servants that the Further Education system in this country was not producing adequately trained young people (Senker, 1996). By the early 1980s this view led the MSC and the DES to look at alternative ways to educate and train young people, and led to the call for a review of vocational education. As is often the case though, the scenario was not one of the "left" versus the "right" but one that was more complex (Williams and Raggatt, 1997).

This was the background to what John Burke called a "quiet revolution" that occurred within Vocational Education and Training (Burke, 1989), which was the introduction of competence based training from the middle of the 1980s and early 1990s. The reason for this revolution, as discussed in Chapter 2, was the need for the UK to arrest its decline as a trading nation. It was essential that the country should compete in the high technological markets to be successful economically, and this could only be achieved through improving the quality of education and training in the workforce which could give industry the skilled workforce that it needed.

- **The definition of competence.** At the heart of defining competence is the fact that competence does not exist in any simple way - it is inferred by observing how a person

performs on a number of occasions, perhaps in different settings (Wood, 1995). This meant that whilst the need for new methods of training young people was acknowledged, there was no system for carrying out the necessary training at this time (Burke, 1989). What was needed were criteria for assessing what was necessary for learners to become competent in their employment, and CBET began to be used. With CBET specifications of competence to enable a person to carry out a certain task are formulated, and the person is assessed against them to ascertain whether or not he/she is competent.

The term competence has been in use for many years, and "Certificates of Competence" were issued by the British Coal Mining Industry as long ago as the mid nineteenth century (Hyland, 1994). The meaning of the term competence, however, has not been precisely defined, and carries different meanings in different situations. It has been said (Hyland, 1994) that it tends to merely go to the lowest common denominator, in that a person who is competent can operate to a minimum standard. This has been refuted by Jessup, (Jessup, 1991) who states that competence is the standard required to successfully carry out a task or function. In this case the standard has to be clearly defined, and the success of this is the outcome.

There are at least six models of competence in the world of VET (Mansfield, 1989) and most of these models are based upon inputs, that is what skills individuals possess. The output models are based upon the work roles that individuals will encounter, and one of these, the job competence model was developed, (Mansfield and Matthews, 1985) and was endorsed by the MSC for use in YTS outcomes. This concept makes the setting of standards the essential part of a competence based system which is based on outcomes.

It was considered important that Education and Training should have industrial relevance, which meant that a person should be trained to be able to perform tasks related to his or her work. As an example Alison Wolf, (Wolf 1991) maintains that a competent plumber is one who can repair a central heating system, not one that can define the theories of heat transfer. At this time the system of training in use was driven by the need to provide appropriate training inputs to the country's workforce, and it was thought that this should be changed to a system of learning outcomes. These outcomes were to be assessed against national standards (Senker, 1996), and led to the fundamental review of training methods.

It has been stated (Carr, 1992) that competence can be described as a capacity and as a disposition. The first is concerned with evaluating the performance of an individual to perform a task by using the skills that the person has developed, e.g. a person who is competent as an electrician or a machinist. The second, the dispositional sense, is that which marks episodes of causal effectiveness with regard to the abilities of the person, e.g. a competent piece of driving. This could be explained as the first is to do with the evaluation of persons, and the second is the evaluation of activities. The distinction between the capacity and disposition ways of explaining competence does not appear to be noted in the mainstream literature on NVQs and CBET (Hyland, 1994), and some of the proponents of CBET have admitted that there is no agreement about what the term competence actually means (McAleavy and McAteer, 1991).

Underpinning the setting up of the new qualifications was the assessment of competence, which is the ability to be able to perform a certain task to a satisfactory standard. The

setting of standards has been at the heart of some considerable debate. The method used for the YTS was task analysis, which was the examination of a particular vocational task, and the production of statements of competence. The problem was that YTS was primarily at foundation level and the proposal was that competence based qualifications were to be over the whole range of education and training.

There have been criticisms of task analysis for any form of work roles for the reason that it was originally intended to support work measurement systems, often tied in with incentive payment schemes (sometimes called bonus schemes) which were very popular in the 1960s and 1970s. Task analysis can measure work activities, but when it comes to deriving standards it is not appropriate (Mansfield, 1989). Standards are based around work role expectations, not just tasks, and the MSC decided upon the use of Functional Analysis for defining standards for the new NVQs. Functional analysis considers the expectations in employment as a whole, breaking the role down into outcomes with both the "technical" and "non-technical" elements represented. When Functional analysis was being developed, discussion was held with experienced practitioners and observation techniques as well as job analysis was used. This was to enable a consensus to be found about the vocational area concerned (Oates, 1999). This was a major departure from the methods used previously for determining vocational qualifications.

Functional Analysis can be considered as a top down process, where the person doing the analysis has to decide what the elements of competence are, and decide on the Performance Criteria that are applicable. The analyst has to make decisions about which functions should be included. This is easier at the lower level of competence, and much

more difficult at the higher levels (Eraut, 1994). In the NVQ in Electronics, for example, there are some management elements within the NVQ at level 4, as well as the electronics based elements. The start of the analysis is to ascertain what the key purpose of the role is, and then to include the non-technical elements into Performance Criteria. It has been said that, although this is the theory, in many cases it is not fully understood, and regresses to Task Analysis (Raggatt, 1997).

Haffenden and Brown (1989) showed that in Further Education Colleges there was a wide range of interpretations of the term competence. They found many different conceptions in operation, and many different opinions about CBET. It was clear that a common definition of competence was not available, even from official sources, such as the FEU. Another major problem for staff in Further Education Colleges was that occupational competences were interpreted in different ways by different supervisors (Oates, 1986), and so there could be differences of opinions within individual institutions.

Development of recent competence based schemes has been underpinned by the Jessup Outcomes Model of the Curriculum (Jessup, 1991), and has been likened to the objectives theory. It has been stated that an objective and an outcome in a curriculum sense are not fundamentally different (Otter, 1992). An Objective could be characterised as an intention, e.g. The student will whereas an outcome is the realisation of that intention. The objectives theory was used by TEC and BEC for the syllabi that appeared in the first courses validated by BEC and TEC in the mid 1970s. Because of the similarity between outcomes and objectives, BTEC have been able to rewrite some of the existing objectives based engineering units into outcome based units quite successfully.

A common contention when looking at the outcomes model is that it is dependent upon behaviourist psychology (Burke, 1995). This is probably due to the fact that the assessment of outcomes often relies on evidence which is behaviourist in nature. For example, to assess whether a person can turn a shaft in an engineering environment, one has to observe the person's behaviour to establish the facts about his or her competence. Behaviourism focuses on the study of behaviour when the subject has little freedom of choice, and has a lot to do with operant conditioning which is often used in the advertising industry.

This is very different from the features of the theoretical model based upon outcomes, as shown below:

- Outcomes are based upon work role outcomes, not knowledge or skills alone.
- They are broad based in that they include the interaction between the technical and wider work related area.
- They are concerned with concepts like adaptability, versatility and innovation.
- The learner is expected to learn what is contained in the performance criteria, and must provide evidence (which is the property of the learner) to that effect.
- The learner will negotiate with the lecturer/teacher on his/her learning plan.

(Jessup, 1991)

This is what should happen in theory but in practice it does not always work out like this. For a competency model to work it has to be based around the work role and be holistic in approach, as the model above suggests: however, people may obtain skills in an educational setting but still not be able to function in a work environment.

The definitions of terms in CBET were imprecise and caused confusion, but this did not deter the proponents of competence based schemes, even whilst admitting that there was no clear definition about what competence actually meant (Hyland, 1994). There has also been a problem with making the language of the CBET schemes prescriptive in that it can exclude individuals who are not able easily to adapt to new ways of working and those who can (Oates, T and Fettes P, 1998). It was also recognised that there should be an element of assessing knowledge in CBET schemes, because in the real world there was variation in practice where knowledge was sometimes more necessary than at other times.

This meant that it was sometimes impossible to assess competence through demonstrations alone (Jessup, 1991), which was particularly noticeable in the setting up of NVQs at the higher levels. Another criticism was in the assessing of the standards. The assessor is often the instructor and there could be financial pressure on the assessor to pass the trainee, as part of the funding for NVQs from the Training and Enterprise Councils (TECs) is based upon outcomes.

- **Knowledge and Understanding.** It was thought by the advocates of CBET that knowledge and understanding should come from the Performance Criteria, and not be “taught” as a separate issue. The evidence provided to satisfy the vocational criteria would also give evidence of knowledge and understanding (Dealing, 1989). It has also been suggested that there is no problem in having a competency based approach to higher order skills, but that the definition of standards is very important in this area, and that knowledge and understanding contribute to competence (Wolf, 1989). This proposition has been

emphasised by the theory that when we learn something specific, we also learn something more general (Messick, 1982), which means that knowledge and understanding can be learned as a by-product in vocational instruction.

Wolf also points out that much knowledge and understanding learnt by children is learnt by experience, which is an example of acquiring competence skills (Wolf, 1989). She also maintains that CBET can be used to acquire all sorts of skills, not just those that are low level manual skills. One way of assessing knowledge and understanding is by the use of Range Statements, which is a method of ensuring that the knowledge and understanding parts of skills are addressed. For this system to work correctly it is essential that the Performance Criteria and Range Statements are written correctly with an efficient system in place to validate the process (Wolf, 1988).

Hyland (1994) has stated that, because the early methods used by the YTS of measuring performance did not address the issue of knowledge and understanding, the champions of CBET such as Jessup have had to move away from the narrow view of performance to a more holistic view which takes in knowledge and understanding by the use of range statements. This was only done because the original version of performance did not work and new assessment methods had to be introduced.

This negative view of the early models of CBET has been reinforced by employers, who maintained that knowledge was essential for competence (DfEE, 1995), and that the unit specifications were not clear. Employers felt that whilst knowledge and understanding could be assessed through the performance of individuals, at the higher levels they should

be assessed separately. This is particularly true in Engineering, where to become an accredited engineer under the auspices of the Engineering Council and use the designated titles of Engineering Technician, Incorporated Engineer and Chartered Engineer an individual has to have evidence of knowledge and understanding separately from a vocational qualification; e.g. for level 4 and above it could be a Bachelors Degree. As an engineer and educationalist I support this view, as it is imperative for an engineer to have a certain amount of theoretical knowledge to allow him to work effectively and safely. Another point is, as the employers themselves agree, that it is very difficult to deliver the appropriate knowledge in the workplace, whilst assessing competence (DfEE, 1995). This is particularly true for the later CBET schemes in that knowledge and understanding have to be specified, and not assessed purely by performance.

2. The Formation of the NCVQ and the introduction of NVQs

In 1986 the MSC published the Review of Vocational Qualifications (RVQ), the de Ville Report (DES & MSC, 1986), which recommended a major shift in vocational training with the introduction of a new qualification, the National Vocational Qualification (NVQ), and the setting up of the National Council of Vocational Qualifications (NCVQ), which would be responsible for accrediting the new qualifications. The proposals of the government after the review was announced in the White Paper "Working Together - Education and Training" (DE/DES 1986), which also announced the lengthening of the YTS from one to two years. The two policies were not unconnected as the aim was to have a qualification for the trainees on the YTS to achieve. In fact, the Working Group was asked to give priority to the idea of some qualifications for the extended YTS, so the links between

youth unemployment, VET policy and vocational qualifications were fundamental in this review (Raggatt, 1997).

Ministers of the day were concerned that there was a large number of young people going through youth employment schemes without anything to show for it, apart the YTS certificate, which held no credibility in the world of work. Employers were looking for "proper" certificates, like City and Guilds and BTEC Qualifications, that they were used to. (Raggatt, 1997)

The review team was told to ensure that the vocational/academic divide remained - in that A Levels were not to be touched. Also at this time the new GCSE was producing its first graduates, so there could be no change to the main school qualification at 16 years. The problems about the status of academic and vocational education had been around for many years. An academic education such as A Level was seen to be self-justifying and only for the high flyers, whereas vocational education such as the ONC were for the less able. Even as far back as the 19th Century government interest in vocational education was only aroused by a fear of foreign competition and economic weakness (Holt, 1980), when there was an urgent need for trained workers to produce more. It is apparent that vocational education was seen mainly to be for poorly educated production workers, to enable them to produce more for the sake of the economy. This poor image has, in this country, always hindered the progress of vocational education. The RVQ sought to rectify this image.

The NCVQ was born out of the RVQ, and became responsible for accrediting qualifications offered by awarding bodies. The Government instructed the NCVQ to have a

comprehensive framework for vocational education and training in place by the end of 1992, and this became the NCVQ's remit (NCVQ, 1991). The NCVQ was established as a quasi-independent executive agency, and had originally been intended to be part of the MSC. This was rejected by ministers, who thought that the body responsible for quality in training should not be part of the funding agency. At this time the authority of the MSC was waning, due to the fact that unemployment was falling and was, therefore, not so important as a political problem (Raggatt, 1997).

The NCVQ set up working groups of employers and officials to examine the current state of training, and concluded that nothing was suitable. As it now meant that the NCVQ would be starting from scratch, there was a problem of funding. The original idea was that some of the existing stock of training provision would be suitable for the future, and, as this was not the case, more funding to set up a completely new framework of training was needed. This framework was to be largely based upon industry, with Industry Training Organisations formed, and Lead and Awarding Bodies. At this stage the NCVQ was running out of money and the only way forward for the organisation was to build on the existing YTS, which led to the implementation of the NVQ. Because of the funding problem, the NCVQ adopted a policy of giving conditional accreditation to existing qualifications.

The EITB (and EnTRA after 1991) was recognised by the NCVQ as the Industry Training Organisation for the engineering industry. It was also the Lead Body, with responsibility for defining employers' needs for competence and training (Senker, 1996). As an awarding body the EITB formulated NVQs and submitted them to the NCVQ for accreditation. The

EITB was able to use their existing qualifications as NVQs, with amendments, using the conditional accreditation outlined above. The NCVQ were given a fee for this, and were able to gain much needed funds which enabled it to carry on with its allotted task from the government.

NVQs formally recognise competences found in employment, and the assessment does not require any written tests or examinations. The NVQs are broken down into Units and Elements, and Elements are written in terms which apply to different tasks that an employee might face in his or her workplace (NCVQ, 1991). An NVQ does not require a person to attend a pre-specified training course, and has allowed the EITB (or EnTRA as it became) to validate engineering qualifications in the workplace (Senker, 1996).

The employee has to provide evidence of competence, in an engineering situation it might be a machined job, which meets the specifications written down. The assessment of the outcomes achieved by the trainee, to a stated standard, should be independent of any training process (Jessup, 1991). The new NVQ scheme led the supporters of NVQs to assert that if reliable and relevant standards of vocational competence could be formulated and assessed, then the state of training would be much better than that of previous schemes (Senker, 1996).

The first NVQs to be accredited by the NCVQ appeared in 1987, and between then and 1997 over 1.6 million certificates have been awarded (Raggatt and Williams, 1999). The figures reveal some interesting facts: over 1 million of the awards were at Levels 1 and 2, and only 58,000 were at Levels 4 and 5. It is also interesting to note that all the Level 5

certificates awarded were in Management, and numbered only 3,281 (Raggatt and Williams, 1999). This emphasises the fact that NVQs have been seen predominately for the lower levels, even at Level 3 the numbers are low, at about 14% of the total. The problems of progression add to this, as it is not possible to venture into Higher Education without an acknowledged academic qualification. This is particularly true in Engineering as Engineering NVQs do not address the mathematical requirements for National and Higher National courses.

Another interesting point that arises from the NVQs that have been awarded is that most of the NVQs awarded, just over one million, or 66%, are in just two framework areas. The two areas are Providing Goods and Services and Providing Business Services. This shows that NVQ provision is not even, that some areas have had a very low number of awards. This does, however, show that some areas of work in this country are now having some kind of qualification attached to them, and that a lot of workers now had the opportunity to work for a qualification that is relevant to their occupation.

The idea of good and reliable standards has been a problem since the early days of the NVQ, because of the problems of developing broad standards that are relevant over a wide range of work environments. This is particularly true in engineering, as the numbers of different situations and equipment used is vast (Eraut, 1994). After the initial provisional accreditation, the NCVQ then applied pressure to ensure that the EITB/EnTRA used functional analysis to provide standards for future qualifications (Senker, 1996).

In a major study of NVQs (DfEE, 1995) research showed that there was widespread

support for the NVQ, but with some reservations. The language in which the NVQs are written is jargon ridden and complex, and providers and trainees alike find it difficult to understand. Another problem was that of assessment, and the NCVQ was urged by the review to issue fresh guidelines to make the method of assessment both clearer and credible, with more use of External Assessment. The structure of NVQs was thought to be complex, with too many Lead Bodies. In addition to this, it was found that the NVQ system of assessment and quality assurance was dominated by paperwork and the preparation of portfolios by the students (Eraut et al, 1996) . Again, it was recommended that this should be examined by NCVQ and advice given to ministers to improve the situation.

NVQs became the main provision of vocational training, particularly at the lower levels, during the 1990s in this country. The DfEE report (1995) emphasised that many of the criticisms of NVQs concerned implementation, and these were the issues that would be examined in the late 1990s to improve the provision of NVQs, which were to remain the standard qualification for vocational education into the next century.

3. The Formulation and Introduction of the GNVQ

The concept of the GNVQ was formulated by the government in the early 1990s. They were promoted as a way of improving the status of vocational qualifications, and to give young people more choice at the age of 16. At the time the vocational courses available for entrance to higher education were the BTEC National Diplomas, which by 1989 were studied by 34,500 students (Smithers, 1991), which had increased from 17,700 in 1983 and

were beginning to be seen as a viable alternative to A Level (Sharp, 1998). The competence model of education was having an increasing influence on ministers, and the objectives based National Diploma was not seen to be either rigorous enough or part of a national NVQ framework which was the overall aim. BTEC, however, were not inclined to use a CBET method rather than objectives, and were keen to keep to their well respected qualifications (Sellars, 1989) that they believed were serving students well.

Civil servants in the DfEE were aware of the big differences between NVQs and A Levels and that there was nothing within the National Framework to bridge this gap. What was required, they felt, was a different kind of A Level that was vocationally orientated (Sharp, 1998).

The NCVQ was keen, in the late 1980s, to bring all qualifications under the NVQ Framework, even those non-occupationally specific awards like BTEC Diplomas and Certificates. One reason for this was to bring in revenue for their accreditation. It was at this time in the early 1990s that the development of a provision of general NVQs began (Raggatt and Williams, 1999). By 1991 this idea became a government initiative as ministers were of the opinion that the current provision of post 16 education was inadequate. Ministers who were at the DES at this time were supporters of the A Level, as were most of the Conservative Party in power, and would not countenance any change to the A Level, what they termed the 'gold standard'. This led to the announcement of the new qualification, the GNVQ, in March 1991. This was to be called the Mk 1 GNVQ to distinguish it from the later modified GNVQs.

It was planned that there were to be two levels of GNVQ, with level 3 equivalent to A Level and level 2 equivalent to GCSE. The White Paper that officially launched the GNVQ was published in May 1991 (DES/DOE 1991) and set out the framework for the GNVQ. The NCVQ was to be responsible for deriving the standards, and the existing National Diplomas were to be phased out. The timetable for the phasing out of National and First Diplomas by BTEC was published, and the early GNVQs would supersede the equivalent BTEC Diplomas by 1995.

The proposal was that the GNVQ was to be provided by three awarding bodies, BTEC, City and Guilds of London Institute (CGLI) and Royal Society of Arts (RSA), and the time frame for these bodies to introduce the GNVQs was very fast; they were piloted in September 1992. NCVQ instigated a consultation process on the GNVQ proposals, and received 465 responses (Harrop, 1992). The responses to most issues were favourable but respondents were only asked to comment once the basic model had been drawn up, and so had little influence over what was to be introduced. The actual units that were to be used came out very late in the planning process once everything had been decided (Sharp, 1998), so no changes were countenanced.

The GNVQ Units contained Range Statements, rather like the NVQs, but the Units contained a different emphasis. As they were to provide an entry, at Advanced Level, into Higher Education, external tests were introduced to test knowledge contained in the units. The Advanced GNVQ, at this time, was supposed to do two things: be equivalent to A Level, but also to be a vocational qualification for those young people who, in the main, would not cope with an A Level course (Edwards et al, 1997). There seems to be a paradox

that the GNVQ is intended for those for whom the A Level is not appropriate, but the two qualifications are seen to be equivalent (NEAB, 1995)

In the planning stage, the outcomes model in the original GNVQ in Engineering was criticised by, among others, the Engineering Council who insisted that knowledge of mathematics, for example, cannot be assumed to be acquired through performance as originally proposed by NCVQ (Wolf). After much debate the NCVQ agreed in 1994 that mathematics and science could be stand alone units in the GNVQ Engineering programmes, which was a major success for BTEC and its advisors. When the Engineering GNVQ was introduced it was possible to study four different units of mathematics at Advanced Level, and an optional unit of Mathematics at Intermediate Level, which was important in terms of the entry to Further and Higher Education.

The original GNVQs were criticised for the terminology and language used (Smithers, 1993), which both students and lecturers found confusing (Hodgson and Spours, 1997). This aspect was one of the questions in my research which confirms this view. This version of the GNVQ was also problematic in the amount of recording that was necessary for both students and staff, and in particular the staff found difficulties in tracking the students' progress. They also found the guidance received inadequate. These problems were highlighted in the Capey Review (NCVQ, 1995a), which carried out an investigation into the assessment method of the GNVQ. The conclusions of the Capey Report were repeated in the Dearing Review (SCAA, 1996). Following these two reports, the awarding bodies produced a new model for the GNVQ, the Mark 3, which was piloted in 1997.

To address some of the early criticisms new, revised GNVQ Units, referred to as the Mark 2 GNVQ, were issued in some areas in 1995, which included Engineering. In addition to Range Statements guidance was given to students and assessors to explain the level of knowledge that was required to satisfy the units. At the same time evidence indicators were added, so that it became clear what was actually required as evidence to satisfy the element. As an example, in the Further Mathematics Unit in the Engineering Advanced GNVQ the evidence indicators require a minimum number of engineering problems to be solved, using the mathematics knowledge contained in the element. So from assessing each Performance Criteria the assessment was now based around the element, usually three per unit. This meant that the burden of assessment was much reduced.

In 1995 the Chief Executive of BTEC, Christina Townsend, wrote to all schools and colleges and rescinded the timetable for the withdrawal of National Diplomas, whilst the timetable remained in place for the First Diplomas. This radically affected the take up of some of the GNVQs, including Engineering, as those colleges who weren't involved in the pilots did not then have to provide the GNVQ. Most colleges chose to continue with the National Diploma, and so the number of students enrolling for the later GNVQs remained very low, only approximately 2,700 in Engineering in 1997. This will be discussed further in Chapter 6.

Core Skills, now renamed Key Skills, have been an integral part of the GNVQ since the pilot year in 1992 and were introduced as generic competences (Jessup, 1991). The introduction of the notion of Core Skills into CBET schemes was an acknowledgement, although not overtly, that there were serious shortcomings with the schemes as they stood.

It was also acknowledged that there were serious deficiencies in basic literacy, numeracy and IT in trainees who were working towards NVQs (Hyland, 1994). As an attempt to overcome this the idea of Core Skills was introduced, similar in content to the BTEC Common Skills that were introduced in BTEC Higher, National and First Programmes in the mid 1980s.

The idea that all trainees should have a basic knowledge in the three mandatory Core Skill units, Information Technology, Application of Number and Communication, seemed to make a lot of sense. These skill areas span vocational domains and help to provide the flexibility and transferability that is necessary (Hyland, 1994) for trainees to become useful members of the nation's workforce. A balance is required between the fairly narrow skill base required by an employee to do a particular job, and that required for that employee to be able to transfer his or her skills to another area.

In engineering there has been a move for some years for apprentices training under the EITB and EnTRA schemes to cover all basic skills before specialising in a particular area. It was found that employers generally supported the idea of Core Skills, in that they increased workforce flexibility (DfEE, 1995). Gordon Beaumont (DfEE, 1995) in his review of 100 NVQs suggested that the name of Core Skills was not helpful, but as the term was in general use he, at the time, suggested it continue.

The philosophy of Core Skills has been criticised in that if they become too generic then they run the risk of becoming meaningless (Ashworth and Saxton, 1990) unless they are applied to a specific context. The Core Skill Application of Number, for example, has little

relevance in the GNVQ Engineering context in that the skills, at Level 3, are below the standard required for the Mandatory Unit Mathematics for Engineering which all students take, usually in the first year of the course. It would be, though, important in another GNVQ area where mathematics is not part of the main course. To be of any real use, the Core Skills should be based around the vocational area being studied (Hyland, 1994). In some colleges Core Skills had been taught centrally as stand alone units where all GNVQ students, regardless of their vocational areas, have had the same tutors. For example, the mathematics section in a college has taught Application of Number for all vocational areas, and this makes it very difficult to provide the vocational context that is important (FEFC, 1995). This was emphasised by Alison Wolf, in a discussion note commissioned for the Engineering Council, when she suggested that the Application of Number Core Skill attenuated the Mathematics content in non A Level routes to HE (Wolf, undated). This was addressed by the separate Mathematics Modules provided by the Engineering GNVQ, which maintained the strong Mathematics content in engineering courses that was essential to obtaining places in HE

The Core Skill provision has been criticised by the FEFC Inspectorate (FEFC, 1995) for the reasons stated above. The report stated that there were some examples of good practice, but that generally the provision of Core Skills was unsatisfactory and gave cause for concern. The report suggested that there should be a smaller number of Core Skills applicable to all GNVQs and that each vocational area should identify specific skills appropriate to the vocational area. The revised GNVQs, called the Mk 3 GNVQ, currently being piloted, based around the Capey review, include a revised Core Skill provision. The Core Skills will be renamed Key Skills and will include set assignments in Application of

One of the major problems that have beset Further Education qualifications over the years, and the GNVQ in particular, is the problems of student retention and withdrawal. In an HMI report in 1991 (DES, 1991) it was reported that 13% of students had withdrawn within six months and that withdrawal rates varied between almost zero and 40%. In 1994 and 1995 FEDA undertook a research project to examine why students withdraw from college courses.

The common factors found in the research were financial problems, poor English, low motivation, prior educational experience, family or health problems and low self-esteem. When the GNVQ client group is looked at, a number of the above factors are pertinent. The students embarking on the Intermediate GNVQ have usually achieved low GNVQ scores, and have therefore relatively low motivation (Davies, 1999). Those students enrolling on the Advanced GNVQ have, in the main, the minimum GCSE requirement of 4 grade Cs which place them below the A Level entry. When the views of withdrawn GNVQ students and current GNVQ students were examined (FEDA, 1998) in a research project it was found that the factors that linked either the withdrawn or staying on students were:

Induction - whether the GNVQ was the most appropriate course.

The level of interest generated by the content of the course.

The perceived quality of teaching and the help given to the students.

The perceived help in progressing to H.E. (at Advanced level).

The message from the research into this important problem is that colleges and those

delivering GNVQ courses can make an improvement in student retention by acting upon those factors within their control. These include strategies that pinpoint particular areas that have poor retention rates and compare them against those that have good rates, and by providing effective staff development for teaching staff (Davies, 1999). Whether or not these strategies will have an effect remains to be seen.

4. Conclusion

In this chapter I have given the background and context of Competence Based Education and Training, which eventually led to the introduction of the new vocational courses in the late 1980s and the 1990s.

CBET was seen as the key to the solution of the United Kingdom's problems, to provide a competent, trained and flexible workforce. This was particularly important during the recessions of the 1970s and 1980s, when rising youth unemployment was a political problem for the government. At this time there was a problem of defining competence, and there was much discussion by both those in favour of CBET and those against. The proponents of CBET won, in that competence became the driving force behind industrial training in the late 1980s and 1990s.

The largest change in training for many years came with the introduction of the NVQ, which was not necessarily based upon college courses but could be assessed in the workplace. Whilst there were many criticisms of the NVQ, it does offer the possibility of qualification without having to attend a college. This is a very positive development, and

has benefitted many people. One example of this is within the health service, where NVQs for non-professionally trained staff are available up to Level 3, completed wholly at their place of work. It also helps those people who find sitting examinations very difficult, as the NVQs are assessed by producing evidence of work related competence.

There has been much debate about the issue of knowledge and understanding, with the purist supporters of CBET saying that knowledge and understanding comes from competence. The position at the time of the introduction of the GNVQ was that there was a need to ensure that knowledge and understanding are present, particularly at the higher levels. This was carried out by the use of range statements, present in both NVQs and GNVQs, which gave the range of activities that would show competence. This is particularly true in engineering where there are issues, for example, about safety which requires theoretical knowledge. As an engineer as well as an educationalist I am convinced that knowledge and understanding are essential, and the introduction of core skills also helps towards this. These developments have taken us away from the very pure vision of CBET that some would have liked to see.

The GNVQ is an outcome based qualification which has been modified since its introduction in 1992. The original unit specifications, the GNVQ Mk 1, were not very clear about what was required of the student, and were changed to the GNVQ Mk 2 in 1995 to include guidance on how to assess the units. The change to the Mk 3 GNVQ, to encompass the views of the Capey review, is being piloted prior to a general introduction in the year 2000, and the changes include rewritten units which will be easier to interpret. There will be short answer tests to replace the multiple choice currently in use, and these

will be available in January and June only. Set assignments, with a benchmark assignment to check on assessors' grading, will form part of the assessment for each student. Each unit will be graded, with a point scheme to work out an overall grade and the current grading themes will disappear. These will be replaced with grade descriptors explaining what is needed for the different grades.

The Mk 2 GNVQ in Engineering currently in use is, in my opinion, a much better qualification than the original pilot qualification issued in 1994. My research study involved both the Mk 1 GNVQ and the Mk 2 GNVQ in Engineering. When I was piloting the research methods in 1994/95 the GNVQ in use was the Mk 1, but the Mk 2 was introduced during my main study. I was therefore able to examine both Mk 1 and Mk 2 GNVQs.

Whether or not it is an improvement on the traditional BTEC National and First Diplomas is an issue to be discussed in the analysis chapter, Chapter 6. The issues about the effectiveness of GNVQs will also be contained in Chapter 6, which will include the issue about the government's requirement that GNVQs at Advanced Level will be a major alternative to the A Level, one of the most important reasons for the introduction of the GNVQ.

This chapter has outlined the introduction of CBET to put the GNVQ, the focus of this research, into context. The next chapter, Chapter 5, will detail the results of the research study, both the pilot study which used the Mk 1 GNVQ and the main study, which used the Mk 2 GNVQ. The differences between the two will be examined in both Chapter 5 and

Chapter 5: Research Results - Pilot and Main Studies

This chapter will contain the results of the research for both the pilot and main studies. The methodology of the main study was the same as the pilot, apart from some minor alterations, so I am confident that the data from both studies can be used. The research was conducted in two colleges, College A and College B, and involved both questionnaires and interviews as detailed in Chapter 2. The pilot study of the research was conducted in College A during the pilot year of the GNVQ in Engineering, 1994/95, and the main study during the following academic year, 1995/96. This has enabled me to examine the responses of the staff to both the pilot GNVQ in Engineering, a Mk 1 GNVQ, and the general release of the GNVQ following the pilot in College A. The course changed in 1996 to the Mk 2 GNVQ as discussed in Chapter 4. The staff were, therefore, involved with both of these courses. The research in College B was conducted with the Mk 2 GNVQ in the academic year 1996/97.

It is necessary, before the results, to explain how the responses to the questionnaire and the interviews were generated. The questions in the interviews and the questionnaires, see Appendices, were focussed upon the points I have used for evaluating effectiveness, namely;

1. **Core Skills.** The core skills are particularly relevant for progression into H.E. and employment. Government has continually stated the usefulness of these skills for business. They have also been given prominence, as key skills, within the Dearing Review (1996).
2. **Grading.** Grading has been a very important part of the GNVQ since the beginning, and is particularly important for progression to Higher Education. The Grading

Criteria have been modified for 1995/96, so there may be differing responses from the pilot and the main research.

3. The Units. For the qualification to be effective it is important that students and staff can understand the meaning of the units and that they were clear. This has been a criticism of both the Capey Review (1995) and the Dearing Report (1995).

4. The attitude of lecturers. Clearly, the attitude of the teaching staff is vital to the students' success. The qualification is written in outcome terms, and a student centred approach is vital. Staff development is, therefore, a very important factor.

5. External Testing. This is a new and important feature of vocational education, and is particularly important, at Advanced level, to enhance parity of esteem with A Levels, which has an effect upon access to Higher Education.

6. NVQ-Provision. BTEC allow some NVQs to be provided for on GNVQ certificates. This has a particular bearing on those wanting to enter employment. This question was included after the research had started, as it was a late development from BTEC and the EITB. The staff at College A were not asked this question in the questionnaire, but were in the interviews. The students from College A and both staff and students from College B had this question included in the questionnaire.

7. Access to Higher Education and Employment. This is really a culmination of the other effectiveness parameters, resulting in the students future progress.

8. Comparison with BTEC Nationals and Firsts. For the staff, the effectiveness of GNVQs can be compared against the long - standing National and First Diplomas for full-time students. BTEC have indicated that the National Diplomas will be allowed to continue for the foreseeable future, but the First Diplomas will be phased out. This means that there will continue to be National Diplomas around for staff to compare with, in discussion with colleagues from other colleges.

Results - College A: Pilot and Main Study

1. Pilot Study

Staff Interviews

The interviews with staff took place during the academic year 1994/95, and were conducted using a series of open ended questions which focused on the main features of the GNVQ, (a list of the questions is included in Appendix 3). Five interviews were conducted out of the total GNVQ teaching team of 14 members of staff. The staff interviewed were from both mechanical and electrical engineering backgrounds, with a large range of teaching experience ranging from more than twenty years to five years. The interviews were all recorded with the permission of the staff involved, and notes of the interviews were then written out.

- **Question 1. What is your opinion on the Performance Criteria that have been developed for the GNVQ Units that you have seen?**

The first question examined the contents of the units of the GNVQs. All the lecturers thought that the Performance Criteria (PC) were at least of a comparable standard to that of the existing courses, the National and First Diplomas. When examining the engineering

content, one lecturer thought they were an improvement over the current qualifications. Another thought that the range statements give more information and was therefore very important. The language of the PCs gave some concern, with some being more clearly written than others. It was thought that the language of outcomes would not be easily understood by students, and that the qualification expected a lot from youngsters. One lecturer reported that half the group of students had difficulty in understanding the meaning of the PCs, although they knew the meaning of the individual words. This emphasised the importance of induction, which the staff thought was essential.

- **Question 2. Core Skills are an essential part of the GNVQ. How well do you think they fit in with the vocational unit specifications?**

All the lecturers thought that the inclusion of core skills was a positive feature of the GNVQ. It was thought that they are essential for a successful career in engineering, and could cover aspects that might be overlooked, e.g. communication skills. There were difficulties expressed about the way the core skills were then presented. The main problem was obtaining the skills from the units, and cross-referencing them. All the lecturers mentioned the paper work required to provide all the evidence. It was also mentioned that some units were easy to relate to core skills, and that there was a danger that these would be used for core skills to excess. So in terms of effectiveness there were potential problems.

- **Question 3. The GNVQ units are not individually graded. How do you view the overall grading themes as currently presented?**

All lecturers said they had problems with grading themes. Most admitted that they did not fully understand the themes, and said they were still looking. The comments were that the themes were unnecessarily complicated, and that there was no vocational grade for the

units. It was thought that this could affect the students' position regarding H.E., as traditionally Universities looked for specific grades in vocational units on BTEC National courses. One lecturer thought that the 30% rule for grades was not good enough, that this could lower the standard. His comment was that 70% of a students portfolio could not be up to standard.

After the first three interviews new grading themes, "synthesis" and command of "language" were added by BTEC and NCVQ. It was thought that this would provide an improvement to the grading structure. The grading themes were definitely the least understood part of the GNVQ structure despite considerable staff development during the previous academic year.

- **Question 4. Do you think that if students go into employment the GNVQ will give them the necessary vocational skills, knowledge and understanding for a career in engineering?**

All the staff members thought that the vocational content of the course would give students a good opportunity for a career in engineering. One suggested also that a work placement would enhance this opportunity. Another lecturer voiced concern about the breadth of the course whilst another said that it was the optional units which gave the course a better focus, particularly the NVQs that the students are studying in addition to the GNVQ units. It was felt that the "language" grading theme helped to make the course useful to employers.

Whilst there was some disagreement about the employment aspect of students' progress, it was generally felt that students entering employment with a GNVQ would be better equipped than those with A levels or GCSEs. This would not, however, be significantly

different to students entering employment with BTEC National or First Diplomas, who have always been attractive to employers.

- **Question 5. Many of the students progress to HE or FE. Do you think the GNVQ will give them the necessary skills to succeed, e.g. Study skills, knowledge, communication skills?**

The academic content of the advanced GNVQ was thought to very suitable for progression, with external tests being a positive step. It was thought that the responsibility that is given to the students on GNVQ courses is similar to that in HE, which should prepare the students well. One member of staff felt that the content of the GNVQ was wider than that of the National Diploma, which would be a help to the students. The possible progression of students from the Intermediate GNVQ onto the Advanced course was possible only if the optional Mathematics unit was taken. Although there is a mandatory unit, Science and Mathematics for Engineering, it was felt by team members that this would not be sufficient for students to succeed at advanced level.

Overall there was a very positive feeling about progression, but it was felt that this was not better than that the National Diploma. The external tests for the Mandatory Units were enthusiastically supported by staff who felt that parity of esteem between A levels and the vocational route was long overdue.

The questionnaire, see Appendix 2, was carried out in March 1995, and 10 staff out of 14 responded. The results have been tabulated, and shown overleaf.

Staff Questionnaire

	All Staff	Inter. Staff	Ad. Staff
Question Number	Mean	Mean	Mean
2. Use of Induction	2.44	2.16	3
3. Style of the GNVQ Units	3.3	3	3.42
4a. Are Core Skills understandable?	3.55	4	3.42
4b. Are Core Skills useful?	3.7	3.33	3.62
5a. Do you understand the Grading Scheme?	2.25	2.16	2.33
5b. What is your opinion of the Grading Scheme?	2.66	2.83	3
6. What is your opinion of the GNVQ Instruction Sheets	3.1	3.33	3.62
7. Have you found the way the Units are written clear?	2.77	2.33	2.71
8. Do you think the External tests are reasonable?	2	2	1.75
9. Have you found the Staff Development helpful?	3.33	3	3.28
10. How would you compare the GNVQ against BTEC?	2.5	1.66	2.85
11. How well is the GNVQ preparing students for H/F.E.?	2.3	2	2.68
12. Do you think the GNVQ is preparing students for work?	2.45	2.17	2.71
13. What is your opinion of the GNVQ so far?	2.55	2.17	3

Results from Staff Questionnaires

The results of the questionnaire have been calculated as an overall mean, and then a mean for Advanced and Intermediate staff, for comparison purposes. It was originally intended to include standard deviations, but as the sample size was small I decided to use the means only. Although the numbers were low I decided to continue with the comparison of means between Advanced and Intermediate staff.

The questions 4b and 5b were inserted after the questionnaire had been designed, as I decided that there were two issues about core skills - the first being how well they are understood and the second whether they are thought to be useful. The same issues applied to grading - whether it was important and useful and whether the scheme was understood. The results showed that there were differences, as explained in the text. When the questionnaire was used in the main study the questions were renumbered. The actual research questions start at number 2 as the first question of the questionnaire asked for the respondent's age and what course, Intermediate or Advanced, they were taking.

- **Question 2.**

The first question referred to the effectiveness of the induction period. The mean for this question was 2.44, with a mean of 3 for advanced and 2.16 for Intermediate. The staff thought the guidance given to Intermediate students was not as effective as for the advanced students. One lecturer commented that he thought "some Intermediate students are on the wrong course" in that they would have been better on a craft engineering course, whilst another said "not effective for Intermediate students". It appears that staff think that Intermediate students need more help with initial guidance than advanced students. I think that this is partly due to the fact that there is an entry requirement to the advanced course, four GCSEs at grade C including Maths and Science, whereas there is no entry requirement for Intermediate students as such. It is therefore more difficult to assess whether an Intermediate student will succeed or not on a course. Again, induction is very important for these students.

- **Question 3**

This question asked whether the style of instruction used is different for the GNVQ than the traditional First and National courses. The overall mean was 3.3, with a fairly wide spread. There was no significant difference over the two groups. One person said that he began to teach in a similar way, but "due to end test problems I am now biasing my teaching towards helping the students pass the end tests". The tests referred to are the external tests. Overall it appears that the staff have changed their approach to teaching on the course, but not significantly so.

- **Questions 4a and 4b**

These two questions are concerned with the Core Skills content of the GNVQ. The Staff indicated that they did understand the core skill requirement of the GNVQ, Q4a, with a

mean of 3.55. The Intermediate group had a mean of 4 indicating that they understood it even better. A mean of 3.7 was given to whether the core skills are a good idea, Q4b, with no significant variation over advanced and Intermediate. One person commented "yes, over all BTEC areas", indicating the familiarity with BTEC Common Skills which had been in place for some years.

- **Question 5a and 5b**

These questions were concerned with the GNVQ grading system. The mean for understanding the grading themes, Q4a, was 2.66, for both advanced and Intermediate. One person, who gave this question a 2, wrote "mainly because of jargon". Concerning the staff's opinion of the grading themes, this had a mean of 2.66. There were several comments about this, including "the idea is good, but should be simplified", "much too complicated", "too much emphasis on applying grading technique to all BTEC subjects". This last comment concerned the fact that the grading is for the whole of the qualification, and students do not get credit for a particularly good performance in an individual unit.

- **Question 6**

This question was concerned with the new type of assignment instruction sheets which had to be used and whether they thought students would find them easy to follow. The overall mean was 3.1, with no significant variation. One comment was made over this issue, and that was "again, too much jargon", meaning that on the instruction sheets both the vocational assignment to be carried and Core Skills were assessed, together with the Grading Scheme mark. Overall, though, I found that the staff were happy with the assignment documentation.

- **Question 7**

All staff voiced concerns over the way in which the GNVQ units are written. The overall mean was 2.77, and there were also some comments concerning this area. One person, who did not give a grade for this question, said "some too broad, e.g. science. Not enough detail but they are being re-written". Another said "The Intermediate range statement (engineering in society and environment) gives no indication of depth of study or precise areas of study".

One person also commented on the content of the units; "GNVQ units assume far too much previous experience/knowledge and are far too broad in the new topics". One person gave this question a 1 on the questionnaire, and several gave this a 2, indicating the need for some clarification in the way the units are written.

- **Question 8**

The staff were very concerned about this question, External Tests. The questionnaire was administered just after the first series of external tests were released, which were problematic nationally. This led, perhaps inevitably, to an overall mean of 2, which indicates a strong feeling that the tests were unreasonable with the advanced lecturers giving an even lower mean of 1.75. There was one particular comment about this question, which included; "the present external tests are appalling and display many of the classic mistakes that educationalists are warned about when doing my PGCE. The external tests have been bolted on as an afterthought". Another person made the comment "meaningless". This was obviously an area that needed to be looked at, the worry being that the staff, all who have been teaching for some considerable time, view the tests as

unreasonable. The problem with the tests do not apply to the whole of the GNVQ, as two members of staff gave this question a 5, indicating that some tests were satisfactory.

- **Question 9**

This next question concerned staff development. Overall the mean for this question was 3.33, with no significant variation over advanced and Intermediate. One comment was made; "meetings (1 to 1) have been useful but paper work is a problem". When analysing the results, the staff who gave this a low score were those who gave low scores on most of the other questions as well. Those who made constructive comments and gave higher scores generally gave a higher score for the staff development. It seems that when staff development is seen to be helpful a more positive approach is given to the course, and staff are more optimistic about the future. Another comment by a person who had not had any staff development wrote "I hope you don't send me on another bloody staff development course".

- **Question 10**

The staff were then asked for their opinion about how the GNVQ compares with the First and National Diplomas. Overall the mean was 2.5, which indicates that the staff felt that the GNVQ does not compare as equal to the First and National courses. This was particularly true of the Intermediate lecturers, who gave this question a mean of 1.66, with a S.D. of 0.47, indicating that this was a widely held view. The advanced lecturers gave a mean of 2.85, which was considerably higher than the Intermediate. One lecturer who teaches on both advanced and Intermediate, gave advanced a 5, and Intermediate a 2, which shows a considerable difference between the two courses. Another lecturer said "the Intermediate course is much worse than the advanced" and "The Intermediate course is not good enough for progress to either employment BTEC or National level. It will need either

supplementing from NVQ 2 or replacing." Another Intermediate lecturer said "in many institutions because of the way GNVQs are structured and assessed, there may be a lack of genuine academic rigour. Ultimately the GNVQ will be seriously devalued". The last written comment was "syllabus needs to be more clear. And all exam questions should be correct which they are not (external)". The strength of feeling about this is shown by the fact that there were more comments about this than any other question.

- **Question 11**

The next question concerned the preparation of students for further and higher education. The overall mean was 2.3, but again there was a marked difference between the advanced and Intermediate. The advanced had a mean of 2.68 and the Intermediate of 2. The S.D. indicated that there was general agreement. The only Comment was "Type of student intake for Intermediate has a strong bearing on scores". It would appear that the staff generally thought that the GNVQ was not preparing Intermediate students well for further education. This is not surprising when the results of the previous question is looked at, where the Intermediate course was compared badly against the First Diploma. It follows that if the course is not as good, then it would not prepare students well for further education.

- **Question 12**

This question asked whether the GNVQ was preparing students well for employment. The overall mean for this was 2.45, with the advanced staff giving a mean of 2.71 and the Intermediate a mean of 2.16. Again there is a quite considerable difference between the advanced and the Intermediate, which is perhaps not surprising considering the previous two results. The Advanced staff seemed to indicate that the GNVQ was preparing students fairly well for employment, but the Intermediate staff considerably less so. One lecturer

commented "not more than the national (diploma) did" Another said "The Intermediate course is not good enough for progress to either employment or BTEC national level".

- **Question 13**

The last question concerned the lecturer's opinion of the course as a whole. The overall mean was 2.55, which was just under half way between good and bad. The advanced was 3, and the Intermediate was 2.16. It is not surprising that the Intermediate mean was lower after the previous results. Further comments about the course were; "confusion seems to be the problem overall and proliferation of paper work", "GNVQ range statements assume too much previous experience/knowledge".

Comments on Staff Responses

Looking at the overall results, there are obvious problems with the perception of the staff of this college concerning GNVQs. This is not surprising considering this is a pilot year, and so is very much new to most of the staff. The worrying aspect is the difference between the Intermediate and advanced results with low scores for the last four questions. The most notable was the very low score given to comparing the first diploma and GNVQ Intermediate, at 1.66, indicating that the staff compared the Intermediate GNVQ badly to the BTEC First Diploma.

It would seem, when looking at the staff responses, that their views had not changed to any extent over the six months between the interviews and the questionnaires. The comments about the language of the units in the GNVQ were echoed in the questionnaire, as were the comments about the excessive paper work and administration involved.

By the time the questionnaire was completed the opinions of staff was that the First Diploma was better than the GNVQ Intermediate, and the opinions about the National Diploma and GNVQ Advanced were fairly neutral, apart from major concerns about the GNVQ tests. This has to be taken in the context of the GNVQ Courses being pilots and therefore untried, and the external tests were the first that BTEC have ever written in engineering. BTEC indicated after the first two series of tests that they would be amending the tests after the quite considerable feedback they had received. This would, however, have to be in agreement with NCVQ. On the staff side the triangulation has shown that the opinions indicated by the questionnaires were supported by the interviews. The staff used the questionnaires to note specific points on the questionnaire, and these written points were very similar to those that were voiced during the interviews.

Student Questionnaire

The questionnaire was delivered to both Advanced and Intermediate students during the week commencing 13th February 1995. The questionnaire was delivered to 41 students who were studying the GNVQ at College A, and 36 responded. This consisted of 27 Advanced students and 9 Intermediate students. The results have been analysed, as shown below, into; all students, intermediate students, advanced students, students aged 16 and 17 years and students aged 18 years and above. The questionnaire was analysed by using means and standard deviations, although the Intermediate students' results may not be significant because of low numbers. I decided to continue with it as this was a pilot study, and would provide some good practice before the main study. The results are tabulated overleaf.

Question No	All	Stud	Inter	Stud	Adv	Stud	16	17	18	Stud
	M.	S.D.	M.	S.D.	M.	S.D.	&	St		
2.(Guidance	3.6	0.82	3.22	0.78	3.74	0.84	3.6	0.89	3.3	1.02
3a(Style)	3.74	0.92	4.22	0.78	3.57	0.97	3.72	0.96	3.8	0.97
3b(Style Dif)	2.66	1.17	2.55	1.06	2.71	1.21	2.6	1.26	2.6	0.91
4a(C. Skills)	3.32	0.98	3.66	0.81	3.2	1.05	3.52	0.8	2.8	1.25
4b(C.S.good)	3.2	0.91	3.55	0.95	3.08	0.89	3.12	0.91	3.4	0.92
5a(Grading)	3.42	0.99	3.4	0.91	3.44	1.02	3.31	0.91	3.2	1.17
5b(Grade gd)	3.29	1.06	3.1	0.8	3.36	1.16	3.35	0.96	3.3	1.34
6(Inst sheets)	3.27	1.17	3.15	0.79	3.32	1.31	3.36	1.32	3.4	1.35
7(Lecturers)	3.87	1.06	4.1	0.94	3.79	1.11	3.92	1.18	3.7	1.1
8(Units clear))	3.09	0.83	3.25	0.66	3.04	0.89	3.08	0.71	3.1	1.13
9(Ext Tests)	3.51	0.76	3	-	3.62	0.75	3.33	0.62	4	0.75
10(Over Satis)	3.6	0.84	3.5	0.86	3.64	0.84	3.67	0.85	3.4	0.8

Results of Student Questionnaire - Mean and Standard Deviation

- Question 2**

This question concerned guidance the students received at the start of the course during the induction period. This college now has a six week induction period at the end of which the students sign a learning agreement. This means that a great deal of emphasis was placed on guidance during this period. All students felt that the guidance they received was quite good, with the intermediate students finding the guidance marginally less good than the advanced. The S.D. on this question ranged from 1.02 to 0.78, which was a relatively low spread of opinion.

There was one written comment about guidance from an intermediate student who gave this question a 2, he said "They need to explain the course much better and clearer". As I have said above, the intermediate students had the most difficulty with guidance. As these students have achieved much lower GCSE results on entry, it is perhaps not surprising that they need more counselling to ensure that they are on the right course. On the whole,

though, I think that this college's emphasis on induction and guidance has been well received by the students.

- **Question 3a**

This question referred to the style of instruction being received by the students. The GNVQ format encouraged the use of Student Centred Instruction, which most of the staff were not familiar with. In the year before the commencement of the course this college provided staff development of 16 hours per member of staff to enable the course teams to look at the most effective ways of providing instruction for the students using this method. This took the form of two complete days away from college where the course was looked at by the team as a whole. During this time the team developed a system of documentation for assignment work to give the maximum amount of information to the student. This has helped the student to understand what is required to complete the assignment successfully.

The students were positive in their answers for this question, with an overall average of 3.74 indicating they found the style of instruction helpful. The intermediate students gave a significantly higher response to this question, with a mean of 4.22. The emphasis on student centred learning is, I think, particularly useful for the lower ability students who haven't had much success in their years at school.

- **Question 3b**

In this question the students indicated that the style of instruction was different to that which they had received in the past. The mean for this question was 2.66 with no significant differences over the different groups. There was also a large S.D. indicating a wide difference of opinion between the students, but there were no written comments concerning this question.

- **Question 4a and 4b**

On the topic of core skills, the students overall indicated that they understood (Q4a) the core skills requirement fairly well, with a mean of 3.32. The older students gave a lower score to this question, with a mean of 2.8, indicating they had more difficulty in understanding the requirements of the core skills. I think that these students have had come across this type of assessment before, whereas the younger students will have all completed an NROVA at school and therefore be more comfortable with this type of approach. It is interesting to note that the same students gave a higher score to whether they thought the core skills were a good idea (Q4b), a mean of 3.4, which is higher than the overall score of 3.2. It seems that all students thought the core skills system was good, with a S.D. of <1 . In one written comment a student said that I.T. skills are very important and commended this aspect of the GNVQ.

This result agrees with the staff interviews, which also indicated that core skills were an important part of the curriculum. The staff, though, were concerned about the presentation of the core skills within the GNVQ, a problem which did not effect the students as they do not have this responsibility.

- **Question 5a**

All the students said they understood the grading themes for the GNVQ, with a mean of 3.42, and no significant change over the range of students. This is particularly interesting as the grading system has been seen as a problem by staff who had indicated they found the system difficult. I think the difference comes because the students take the themes at face value, as written on their assessment sheets. Staff, however, look deeper into the text and see all kinds of possible problems, on interpretation in particular.

- **Question 5b**

The students were also asked for their opinion of the grading themes, good or bad. The mean was 3.29, which shows that they have a good opinion of the themes. The advanced students had a slightly higher opinion than the intermediates, but not significantly so. There was one written comment only about grading themes, a student said that he did not understand one of the new themes, the "language of the GNVQ".

- **Question 6**

The next question concerned the assignment front cover. BTEC have given suggested documentation for the GNVQ and colleges have used these as a basis for developing their own system. Overall the students said that the assignment sheets were easy to follow, with a mean of 3.27. There was no significant differences over the range. The issue of documentation for assignments is very important as so much information for the students is given on these sheets. The students' positive response for grading themes and core skills were probably enhanced because of the success in making the front cover understandable. One older advanced student commented that some of the tasks written on the assignment sheet were "a little too vague" and he couldn't see what was required. This was, though, the only written comment.

- **Question 7**

The students were next asked about their relationship with the lecturing staff, were they easily approachable. Generally the students felt that the staff were approachable, with the intermediate students giving a higher score than the advanced, 4.1 against 3.15. I think this is because the staff give the intermediate students more guidance, because of their ability, than the advanced. The advanced students can obtain a higher grade if they work

independently, and so are encouraged to find information for themselves. For the intermediate students, the grading structure is not so difficult and these students then find it easier to ask for assistance.

- **Question 8**

The way in which the units are written was given the lowest score of all the questions, apart from question 3b. The language of the units seems to be difficult to understand for some students, and this was shown to be a problem by the FEFC inspectors report of November 1994. I was surprised that the average was as high as 3.09, with a S.D. of only 0.83, but this still remains a problem with the GNVQ system.

- **Question 9**

This questionnaire was conducted before the results of the first series of tests were known, but all students had been given access to a set of trial tests. There were specific written comments concerned the external tests, but overall the students found some tests relatively easy, and some very difficult, particularly the Mathematics trial test. The comments concerned both the factuality of the examinations and the clarity. Comments of the tests include; "Questions in external tests are technically incorrect and unclear" and other similar comments. I think that the students will probably have discussed the tests with members of staff, and the comment about the technical inaccuracies may well have been pointed out to the students by the staff concerned. Not all the intermediate students had sat the test, hence the omission of a standard deviation for this group. The older students gave the tests a mean of 4, which was the highest for all the questions. The intermediate students found the tests the most difficult, but I think that this is because these students have found the wording of the GNVQ fairly difficult to understand.

- **Question 10**

The last question asked whether the students were satisfied or not with the course. The mean for this question was 3.6, which indicates the students were positive about the course. There was no significant difference over the different groups, but there were some overall comments. One student, who said he was an ex 'A' level student, said "This course is more useful than the 'A' level route to university. More applications are demonstrated instead of being told irrelevant theories. 'A' levels are not in step with GCSEs." Another said "The course is good, however it still contains a few teething problems." One student said he would like to see more help during practical engineering workshop classes from the lecturer, and one student said that the course was "boring, frustrating, time wasting, overworking, uneducational".

Comments on the Student Questionnaire

Looking at the overall responses the students in this college seemed to be coping very well with the course and all the written responses, except one, gave positive feedback on the course, indicating that the students understood that the course was a pilot and that there would inevitably be some problems.

Generally speaking the students had a more positive view about the course than the staff, with the mean for the overall satisfaction of the course being 3.6 and 2.55 respectively. It has to be noted that in the main students did not have anything to compare with the GNVQ courses, mostly coming from GCSE courses at school. The students were positive about the student centred approach that the GNVQ provides.

Conclusion from the Pilot Study

In general, the pilot study proved to be very useful and worthwhile in providing a guide to how the main research would work. The style of the questionnaire and the format of the interviews did not need to be changed before the main research, apart from a few minor changes referred to above. When the results of the pilot were analysed it helped to focus on the issues raised about the GNVQ which I hoped would be addressed. These included, in particular, the grading structure and the problems about students applying for H.E. The results from this pilot gave me confidence that, when conducting the main study, the results would give a clear message about these and other features of the GNVQ.

The pilot study also gave a good insight into the problems that surrounded the GNVQ Pilot, which was a Mk 1 GNVQ. For the main study the GNVQ used in both colleges for the research was the Mk 2 GNVQ. The issues that caused most concern about the pilot GNVQ were the external tests and the way in which the units were written. These issues will be addressed when they occur within the text.

2. Main Study

The main research study in College A was conducted during the academic year 1995/1996. The questionnaires were distributed to all 119 students who were studying for the GNVQ, both Advanced and Intermediate, and all 12 staff involved in the teaching of GNVQ in January 1996. Responses to the questionnaires were received from all 12 staff and 108 GNVQ Advanced and Intermediate students. College A had 70 students who were employed by a large local company and were studying for a GNVQ Intermediate in Engineering, which accounts for the large student numbers. These students were on a two year programme, during which in the first year they study half of the GNVQ and an NVQ 2 full-time at the college. They completed the GNVQ in the second year, on a day-release basis in 1996/7. There were also 22 students studying for an Intermediate GNVQ,

full-time, and 35 Advanced students, again full-time. The staff respondents were the whole teaching team for both GNVQs, some of whom taught on both Advanced and Intermediate.

Analyses were made using the following categories:

Students

1. All students
2. Intermediate and Advanced students
3. Advanced 16/17 years of age students
4. Intermediate 16/17 years of age
5. Advanced 18+
6. Intermediate 18+

Staff

1. All staff
2. Advanced staff
3. Intermediate staff

Results of Main Study

1. Staff

The results of the questionnaires are tabulated overleaf. There are three general points to be noted before the more detailed analysis. The first is that the standard deviation is relatively high for all the questions, showing that there is a wide variation in opinions, which is also shown by the comments from the staff in the interviews. The second is that there are some differences between the Advanced staff and the Intermediate staff in some

questions, this again is illustrated by the comments. The third point is that the sample is relatively small as there were only 12 teaching on the GNVQ, and this has to be borne in mind when examining the means and standard deviations.

The Questions were as follows:

2. Do you understand the Core Skills requirement of the GNVQ; Well - 5, Not at all - 1
3. Do you think the Core Skills requirement are helpful or unhelpful to the students' progression to employment or H/FE; Helpful - 5, Unhelpful - 1
4. How well do you understand the Grading system? Well - 5, Not at all - 1
5. What is your opinion of the Grading Scheme? Good - 5, Bad - 1
6. Have you found the way the GNVQ units are written; Clear - 5, Unclear, 1
7. Do you think the external tests are; Reasonable - 5, Unreasonable - 1
8. Have you found the staff development you have received; Helpful - 5, Unhelpful - 1
9. How would you compare the GNVQ against the National and First qualifications; Better than - 5, Worse than - 1
10. How do you think the GNVQ is preparing students for Higher/Further Education? Well - 5, Badly - 1
11. Do you think the GNVQ is preparing students well for employment; Yes - 5, No - 1
12. What is your opinion of the course so far? Good - 5, Bad - 1

	All GNVQ Staff		Intermediate Staff		Advanced Staff	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
2	3.4	1.06	3.5	1.11	3.16	1.21
3	3.4	0.83	3.4	0.9	3.67	0.94
4	3.67	0.94	3.6	0.99	3.83	0.69
5	2.21	1.03	2.3	0.99	2.2	1.15
6	2.33	1.05	2.3	1.05	2.25	1.09
7	2.55	1.25	2.37	1.2	2.67	1.1
8	3.1	1.36	3.7	1.38	3	1.53
9	2.22	1.22	1.71	0.69	2.33	1.49
10	2.78	1.47	2.75	1.56	3.17	1.67
11	2.33	1.33	2.12	1.27	2.83	1.34
12	2.7	1.1	2.28	0.88	2.6	0.8

Results of questionnaire - College A

I decided to use the results from the interviews as well as the questionnaires together, which enabled me to analyse the data for each topic coherently. To distinguish between the two, oral answers will be in *italic* and written comments in normal type.

Question 2. Do you understand the Core Skills requirement of the GNVQ; Well (5) or Not at all (1)

	All GNVQ Staff		Intermediate Staff		Advanced Staff	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
2	3.4	1.06	3.5	1.11	3.16	1.21

The overall mean value of the questionnaire was 3.4, but with a large S.D. of over 1 in all cases. This indicated that the majority of the staff understood the requirements of the Core Skill reasonably well, but that some of the staff did not.

Some units, e.g. Industry and Society, it was felt, lend themselves better to covering the Core Skills than others, e.g. Mathematics, particularly when a unit demanded the use of discussions and classroom activities. This particularly helped the Core Skill of verbal communication. One respondent said that, in his opinion, *"They are reasonably covered by the natural progression of the course"*. Two members of staff mentioned that the Core Skill units had changed, *"Detail of Core Skills syllabus has changed too often, making familiarity difficult for many"*. One lecturer complained of the extra work assessing Core Skills made, and when reminded about Common Skills said that in the past this hadn't been his responsibility, due to the fact that in this college BTEC Common Skills had been covered either by a Programme of Integrated Assignments (PIA) or by students claiming Common Skills by Log Sheets.

Question 3. Do you believe that the Core Skill requirements are helpful (5) or unhelpful (1) to the students' progression to employment or F/HE

	All GNVQ Staff		Intermediate Staff		Advanced Staff	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
3	3.4	0.83	3.4	0.9	3.67	0.94

The means for this question were similar to those for Question 2, but the S.Ds were slightly lower. When asked whether they thought Core Skills were helpful for students' progression to employment or Higher Education, staff generally felt that they were. "Yes, if done properly, i.e. a good IT input". One lecturer felt that there is confusion in Higher Education "about the value of certain Core Skills, evident when they require more traditional evidence to back them up". Another felt that if Core Skills are used effectively they *"Will improve students confidence to carry out tasks"*, particularly in employment with the skills of communication and working with others in teams. Another lecturer said that he thought Core Skills *"Were essential for life"*. There was general agreement that Core Skills were useful for progression to employment or Further and Higher Education, with no lecturer giving an adverse view.

Question 4: How well do you understand the system for grading students' work in the GNVQ, Well (5) or Not at all (1)

	All GNVQ Staff		Intermediate Staff		Advanced Staff	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
4	3.67	0.94	3.6	0.99	3.83	0.69

The mean of question 4 in the questionnaire was 3.67, indicating that staff felt they did understand the system of grading. There was no significant difference between staff teaching on the Intermediate and the Advanced course.

When questioned, staff again complained about the changes to the system, although one member of staff said that it had *"improved since last year"*, the pilot year of the GNVQ. There were some reservations about the system, in that it was *"difficult to implement"* and that there was *"some ambiguity over allocation of overall grade"*. It was also said that students do not easily grasp how important the grading themes are.

Question 5: What is your opinion of the Grading Scheme: Good (5) or Bad (1)

	All GNVQ Staff		Intermediate Staff		Advanced Staff	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
5	2.21	1.03	2.3	0.99	2.2	0.69

The mean on the questionnaire was 2.2, with scores ranging from 1 to 5 with a high S.D., showing some considerable disquiet about the system with no significant difference between Intermediate and Advanced. One major factor was felt to be that no individual grades for units were allowed. "Both students, and I think employers, would expect a grade to be given for each unit". One person said that the system was *"too complicated"*. One lecturer felt that the whole system of grading themes is flawed, and "lecturers should properly use their discretion on students performance". It became apparent that at this college the staff, with the help of the External Verifier, chose a pragmatic path to the question of grading to *"ensure that the students' did not suffer"*.

Question 6: Have you found the way the GNVQ units are written Clear (5) or Unclear (1)

	All GNVQ Staff		Intermediate Staff		Advanced Staff	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
6	2.33	1.05	2.3	1.05	2.25	1.09

The responses over the clarity of the units show that there are major differences of opinion over the newly written units, compared to the GNVQ pilot year. The mean value was 2.3, with no real difference between Intermediate and Advanced. The S.D. of over 1 shows that there was a wide range of opinion, and this is highlighted by the written and verbal responses. *"Improved many fold in the last year", "much improved this year".* "I can think of an Intermediate unit that is so unclear that it is almost unteachable", "Dogged by illogical and repetitive content".

It seems from discussion that some units in particular are perceived to be very unclear, an example given to me was the Intermediate unit, Industry and Society. In this unit, some students nationally have passed the external examination without studying the unit! The opinion of the staff about the clarity of the units depends upon the unit they teach.

Question 7: Do you think the external tests are Reasonable (5) or unreasonable (1).

	All GNVQ Staff		Intermediate Staff		Advanced Staff	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
7	2.55	1.25	2.37	1.2	2.67	1.1

External testing has caused a lot of comment by staff, particularly after the problem with the engineering tests in the pilot year. In the Mathematics and Science Advanced units the national pass rates were less than 5% in 1995, so many staff were very concerned this year. The mean in the questionnaire was 2.55, which shows this concern. One lecturer said "The spectrum would require additional negative numbers before I could ring the value" (the scale is 1 to 5). Some staff voiced concern about the validity of multiple choice tests, whilst others said the standard was variable, with *"Some too easy, some unreasonably difficult"*. It was mentioned that for the tests to be successful, BTEC (this college's examining body) must "specify the exact knowledge required and base the tests

on this knowledge". There was a consensus that the tests had improved over the previous year, the GNVQ pilot year, including the test specifications.

It has to be recognised that the staff concerned had had no experience of multiple choice tests, externally set, until the pilot year. They had all used traditional BTEC internally set, externally moderated examinations in the past, and I think that some of the problems have been the unfamiliarity with this kind of test.

Question 8: Have you found the Staff Development you have received Helpful (5) or Unhelpful (1)

	All GNVQ Staff		Intermediate Staff		Advanced Staff	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
8	3.1	1.36	3.7	1.38	3	1.53

In the questionnaire this topic gave a mean of 3.1, but with a range of 1 to 5. There was considerable difference between the Advanced and Intermediate staff, with means of 3.0 and 3.7 respectively. This question was the first to show any real difference between the two groups of staff, which consistently shows the Advanced with a lower score. The S.D.s were also high, indicating a wide range of opinion.

The TDLB D units caused some comments, as this constituted a considerable amount of staff development. There was a feeling of resentment in having to complete D32 and D33. Most of the staff considered that if they are trained teachers, then they did not need any other training to teach GNVQs effectively. There was also some confusion in what was actually was required, "Too many interpretations of what things mean". The staff at this college have attended 'away days' training for GNVQ, which appears to have been

successful, with comments such as "*excellent*", "Awaydays and half day meetings very useful".

After the wide range of opinions came to light I examined the staff questionnaires and found that those who gave this question a low score had given generally low scores throughout the questionnaire. This could indicate that Staff Development is important to how staff view the course, that when they understood the philosophy and rationale and how to teach and assess the course, they would view it more favourably. It could also mean that those staff are unhappy about the changes they have been forced to make, e.g. TDLB units, and would give a poor mark to everything. The next question also has a bearing on the changes that have been felt by lecturers.

Question 9: How would you compare the GNVQ against the National and First Qualifications; Better than (5) Worse than (1)

	All GNVQ Staff		Intermediate Staff		Advanced Staff	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
9	2.22	1.22	1.71	0.69	2.33	1.49

A very important part of the effectiveness research is the comparison between the GNVQ and BTEC First and National Diplomas. This again gives a major difference between Intermediate and Advanced, with means of 1.71 and 2.23, with a low S.D. for the Intermediate.

The respondents indicated that any comparison does "depend on subject area". The idea of external tests gives good comparisons nationally, "the external tests check across colleges, but the National Dip syllabi more sensible"; "*The standard is good*". The national comparison is only valid, though, if the tests are of a good standard. The Intermediate

course caused some major problems in the pilot year, with not one student receiving a full award. It was fairly certain that there would have been some First Diplomas awarded, when looking at the results over a number of previous years for similar cohorts. The low S.D. indicates that most of the Intermediate staff shared this common concern. It also has to be remembered that at the end of the pilot year, the Advanced students still had another year to go before they finished the course, and so benefited by the improvement in the course.

Staff said that the poor success of the Intermediate was solely due to the poor external tests the previous year. I think, therefore, that this is still causing some misgivings against the Intermediate course. Staff said at the time of the research that several of the full-time students, and most of the employed students, had passed the three external tests.

Question 10: How do you think that the GNVQ is preparing students for Higher Education - Well (5) Badly (1)

	All GNVQ Staff		Intermediate Staff		Advanced Staff	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
10	2.78	1.47	2.75	1.56	3.17	1.67

The responses to this question shows again a considerable difference in the mean between the Advanced and the Intermediate staff. The standard deviation is particularly high, indicating that there was a wide variation of views. One comment was that GNVQ (advanced) prepares students well in the area of mathematics (there are now four possible units of maths) and that students can study a “breadth of programme followed by intelligent students”, which indicates concern that students choose sensible optional and additional units. Another member of staff said that students are well prepared in “terms of practical skills and knowledge”, but not in “terms of analytical ability”. It was also

suggested that students receive *“an input of a high standard, whatever the failings of the syllabi and qualification structure”*. This indicates that the staff strive hard to provide a good educational experience, in some areas despite the syllabi! The main object, the lecturer said, was to ensure that the “students do not suffer” with their future educational prospects.

The responses of the Intermediate staff was not as glowing as the above Advanced comments. The Intermediate suffered from the disastrous pilot year, as detailed earlier, and as no student received a certificate initially this would have affected their chances. It was said that *"The students (from the Intermediate) were accepted onto the Advanced, even though they were technically not eligible"*. BTEC actually encouraged colleges to be sympathetic to disadvantaged Intermediate students.

Question 11: Do you think that the GNVQ is preparing students well for employment

- Yes (5) No (1)

	All GNVQ Staff		Intermediate Staff		Advanced Staff	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
11	2.33	1.33	2.12	1.27	2.83	1.34

A number of students go on into employment from GNVQ, particularly from the Intermediate course. In this question the standard deviation was again high. In the responses there was a recurring theme about the practical work involved in the GNVQ - *“Good range of practical and life skills combined with vocational units”, “only by providing the NVQ elements are students being well prepared”, “needs trimming to give more time in practical subjects”*. As indicated by the high standard deviation there was some opposition, but only one strong objection *“there seems no correlation in what we require from the student and what the employer would want, (punctuality is not the same*

at 11.00 a.m. as 7.30 a.m.)". This is referring to the problems of punctuality with full-time students, and how this would not be tolerated in employment. Even when the importance of punctuality in the workplace was emphasised, staff complained that students did not take note.

Question 12: What is your opinion of the course so far - Good (5) Bad (1)

	All GNVQ Staff		Intermediate Staff		Advanced Staff	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
12	2.7	1.1	2.28	0.88	2.6	0.8

The overall mean for this question was 2.7, giving an indication of a relatively low opinion of the course. The Advanced staff were more positive about the course than the Intermediate, probably a reflection of the very poor results reported to me from the pilot year. The S.D. overall was high, at 1.1, indicating a wide range of views. There were some favourable comments, and a view that things had improved since the pilot year, “bad start on pilot, getting better”, “*much better than last year*”. Several comments were received about the loading of the GNVQ “needs more work on time/subjects”, “good but overloaded. More time required to tackle work properly”. These comments stem from the fact that the time for the GNVQ had reduced in this college from that of the National Diploma, from 22 hours per week to 18 hours per week. Class times were now all 1.5 hours per subject, down from 1.75 hours in some areas. It was stated that this time reduction had “hampered students’ learning”.

One member of staff was very definite in linking the status of the course to whether or not NVQs were studied alongside, “The inclusion of NVQ in electrical, electronic and mechanical engineering makes for an excellent course - so 2 if GNVQ only and 5 if both GNVQ and NVQ” (on a scale of 1 to 5).

There was some resistance to the imposition of the course, perhaps inevitably, but the feeling was that the standard of the units and the knowledge required is generally comparable with the National and First Diplomas. What has made a big difference in the Engineering GNVQ is the inclusion of NVQs within the GNVQ framework. This was not included in the questionnaire for this group of staff, but was included in the interviews.

The National Diploma and First Diploma both had a strong practical element as part of the curriculum, and the GNVQ originally did not. If this practical aspect had not been included I am sure the result of the research would have been very different. During 1994/95 BTEC and EnTRA came to an arrangement that any centre carrying out work on EnTRA NVQs could include these NVQs (Level 2) on the GNVQ Certificate of Unit Credit. The staff were very positive about this, particularly the Intermediate, and a number of students have now included some NVQ Elements with their GNVQ certificates. There was also a general consensus by staff that the first year of the revised GNVQ in Engineering was an improvement upon the pilot year. The areas concerning the revised external tests and the inclusion of evidence indicators were welcomed as much needed improvements.

2. Students

The results of the questionnaire are tabulated overleaf, in the manner that is discussed at the beginning of the chapter. The number of respondents are as follows; 88 intermediate students and 20 advanced students, a total of 108 students.

The questions in the questionnaires were as follows:

2. Do you understand the Core Skill requirement of the GNVQ; Well - 5, Not at all - 1
3. Do you believe that the Core Skill requirements are a good idea? Good - 5, Bad - 1

4. Have you understood the system for grading your work in the GNVQ; Well - 5, Not at all - 1
5. What is your opinion of the Grading Scheme; Good - 5, Bad - 1
6. Have you found the instruction sheets for the assignments; Easy to follow - 5, Difficult to follow - 1
7. Have you found your unit lecturers; Approachable - 5, Unapproachable - 1
8. Have you found the way the GNVQ units are written; Clear - 5, Unclear - 1
9. Did you find the external tests; Easy - 5, Difficult - 1
10. If you are working towards NVQ qualifications, do you think that this has; Improved your learning - 5, Made it more difficult - 1
11. How would you rate your satisfaction of the course so far; Very satisfied - 5, Unsatisfied - 1

	All Students		16/17 yrs Students		18 plus Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
2	3.49	0.6	3.5	0.61	3.48	0.49
3	3.46	0.73	3.31	0.75	3.79	0.55
4	3.73	0.81	3.82	0.7	3.52	0.85
5	3.44	0.65	3.41	0.7	3.46	0.5
6	3.44	0.82	3.51	0.8	3.28	0.8
7	3.92	0.9	3.92	0.85	3.94	0.87
8	3.04	0.75	2.99	0.7	3.12	0.87
9	3.63	1	3.52	0.9	4.49	0.8
10	4.03	0.6	4.55	0.76	4.17	0.6
11	3.52	0.7	3.45	0.7	3.63	0.52

Questionnaire Results - All Students

	All Students		16/17 yrs Students		18 plus Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
2	3.45	0.62	3.2	0.63	3.47	0.49
3	3.39	0.74	3.24	0.76	3.71	0.59
4	3.73	0.82	3.88	0.71	3.42	0.95
5	3.53	0.68	3.88	0.71	3.42	0.95
6	3.38	0.84	3.44	0.85	3.25	0.83
7	3.85	0.92	3.85	0.88	3.83	0.99
8	3.08	0.78	3.04	0.72	3.12	0.9
9	3.78	1.02	3.68	1.08	4	0.82
10	4.03	0.67	4	0.75	4.25	0.9
11	3.47	0.72	3.38	0.79	3.67	0.47

Questionnaire Results - Intermediate Students

	All Students		16/17 yrs Students		18 plus	Students
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
2	3.64	0.74	3.6	0.71	3.78	0.7
3	3.8	0.98	3.73	1	4.11	0.74
4	3.72	1	3.73	1	4.11	0.74
5	3.08	0.93	2.93	1	3.33	0.82
6	3.69	0.8	3.87	0.88	3.43	0.49
7	3.98	0.81	4.23	0.68	4.36	0.7
8	2.92	0.91	2.73	0.68	3.5	0.87
9	3.04	0.68	3	0.53	3.25	0.83
10	3.83	0.75	3.87	0.81	3.88	0.6
11	3.67	0.62	3.73	0.44	3.5	0.87

Questionnaire Results - Advanced Students

When analysing the data from the students it has to be acknowledged that the overall responses are skewed in favour of the Intermediate group, as there were 88 respondents against 20 for the Advanced group. This shows the importance of examining the evidence according to group in this sample.

Question 2: Do you understand the Core Skill requirement of the GNVQ - Well (5)

Not at all (1)

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
2 (Core Skills)	3.49	0.6	3.5	0.61	3.48	0.49

Results - All Students

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
2 (Core Skills)	3.45	0.62	3.2	0.63	3.47	0.49

Results - Intermediate Students

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
2 (Core Skill)	3.64	0.74	3.6	0.71	3.78	0.79

Results - Advanced Students

The mean in the questionnaire was 3.49 overall. The only difference in the categories being in the 16/17 age group. This group had a lower mean in all three categories, but not

significantly so. This could be because some of the older students had experienced core or common skills in education previously, with some of the advanced students coming from other BTEC courses.

The students' comments were varied when asked if they understood core skills. The response ranged from *"I think so"* to *"I'm not so sure about it"*, although the S.D. was relatively low for this question. The students did not have many comments to make about this question, indicating, with the high mean, that they felt they understood the Core Skills requirement.

**Question 3: Do you think that the Core Skill requirements are a good Idea? - Good (5)
Bad (1)**

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
3 (Core S good?)	3.46	0.73	3.31	0.75	3.79	0.55

Results - All Students

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
3 (Core S good?)	3.39	0.74	3.24	0.76	3.71	0.59

Results - Intermediate Students

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
3 (Core S good?)	3.8	0.98	3.73	1	4.11	0.74

Results - Advanced Students

The means for this question were again high indicating that the students felt that Core Skills were a good idea. The S.D. was well below 1, except for the younger Advanced Students. The majority of Advanced students were in the second year of the course, and were therefore part of the pilot during their first year. This could account for the spread of

opinion as during the pilot the system was new to staff who would not have explained the system as well as in the second year of the course.

The comments of the students were favourable *"helps you with the communication and stuff", "useful for a job"*. There were no unfavourable comments to this question.

Question 4: Have you understood the system for grading your work in the GNVQ - Well (5) Not at all (1)

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
4 (Grading)	3.73	0.81	3.82	0.7	3.52	0.85

Results - All Students

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
4 (Grading)	3.73	0.82	3.88	0.71	3.42	0.95

Results - Intermediate Students

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
4 (Grading)	3.72	1	3.73	1	4.11	0.74

Results - Advanced Students

It can be seen that the Grading Scheme was generally regarded favourably by the students with means of about 3.7. The older Advanced students gave a higher mean of 4.11 and I think that the same point as for the previous question about the majority of the students being second year students applies. This, allied to the maturity of the older students, meant that they understood better. Students generally indicated during the interviews that they understood the system, with comments limited to the next question, their opinion of the scheme.

Question 5: What is your opinion of the Grading Scheme; Good (5) Bad (1)

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
5 (Grade Opinion)	3.44	0.65	3.41	0.7	3.46	0.5

Results - All Students

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
5 (Grade Opinion)	3.53	0.68	3.88	0.71	3.42	0.95

Results - Intermediate Students

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
5 (Grade Opinion)	3.08	0.93	2.93	1	3.33	0.82

Results - Advanced Students

The overall mean for this question was 3.44, with the Advanced students significantly lower. The S.Ds were mostly low, particularly for Intermediate students. When discussing this question with the advanced students there seemed to be some concern about getting a particular grade for entrance to university, whereas, of course, the Intermediate students did not have a major concern about a particular grade.

Students made a number of comments about the grading scheme, both on the questionnaire and on direct questioning, more than for any other topic. This emphasises the fact that grading is a very important area of the course. The respondents thought that employers would look to grading in terms of job prospects *“employers look to see how far you can go”*, *“I always look at the grading on my assignments”*.

The fact that only an overall grade is given was highlighted, *“I think maths unit should have a separate grading system”*, *“some units may let down an overall grade, the marking*

system is too general". Students said they would also like individual grades as *"you then receive credit for what you are good at"*. Advanced students also complained that Higher Education institutions were still asking for special grades in individual units for provisional offers to university. Students put this point of view quite forcefully. There was initially concern expressed that students with GNVQs would be treated differently than students with A Levels or GCSEs. This proved to be unfounded, as all students had received offers to their liking for university, and the intermediate students who wanted to were offered places on F.E. courses, without any grading conditions.

Question 6 - Have you found the instruction sheets for the assignments; Easy to follow

(5) Difficult to follow (1)

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
6 (Instruct Sheets)	3.44	0.82	3.51	0.8	3.28	0.8

Results - All Students

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
6 (Instruct Sheets)	3.38	0.84	3.44	0.85	3.25	0.95

Results - Intermediate Students

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
6 (Instruct Sheets)	3.69	0.8	3.87	0.88	3.43	0.49

Results - Advanced Students

The way the GNVQ is structured means that the instruction sheets for assignments are very important. The front sheet of the assignment is where lecturers indicate how well the student has gathered evidence for covering the unit evidence indicators, core skills, and grading themes. It is also used for giving written feedback to the student to enable them to complete any work that gives insufficient evidence.

The students were asked how easy the instruction sheets were to follow. The results show that, in general, the students think that the assignment sheets are easy to follow. The S.Ds for this question were all below 0.9, with the older Advanced students giving a S.D. of 0.49, indicating that there was a narrow spread of opinion around the mean. The high means were borne out by the students comments, *"Instruction sheets OK"*. One student, however, added the following comment to his questionnaire "Learning Russian is easier than understanding the instruction sheets", although giving a score of 3 to that question. The responses indicate that the students find the assignment instruction sheets acceptable.

Question 7 - Have you found your unit lecturers; Approachable (5) Unapproachable

(1)

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
7 (lecturers)	3.92	0.9	3.92	0.85	3.94	0.87

Results - All Students

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
7 (Lecturers)	3.85	0.92	3.85	0.88	3.83	0.99

Results - Intermediate Students

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
7 (Lecturers)	3.98	0.81	4.23	0.68	4.36	0.7

Results - Advanced Students

The results for this question give very high values from all groups, particularly the advanced students. The older advanced students gave a mean of 4.37, amongst the highest mean of all the questions. I think this shows the added maturity of Advanced students, particularly the second year students. Most of the Intermediate students are 16, having

come directly from school and still learning to cope with the different approach that is found in a college. One sixteen year old Intermediate student said "The unit lecturers are approachable in some cases, but the majority of them are irritating when they ignore you" and another said *"Some are easily approachable and others are not"*. These were isolated comments, the general view being positive with such remarks as; "Approachable most of the time", *"I get on well with most of the lecturers"*.

Question 8 - Have you found the way the GNVQ units are written; Clear (5) Unclear (1)

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
8 (Language)	3.04	0.75	2.99	0.7	3.12	0.87

Results - All Students

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
8 (Language)	3.08	0.78	3.04	0.72	3.12	0.9

Results - Intermediate Students

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
8 (Language)	2.92	0.91	2.73	0.68	3.5	0.87

Results - Advanced Students

The way the units are written is very important as the students are given the units so they know what evidence is required to satisfy the Performance Criteria and Evidence Indicators. All the older students gave a higher score, both Intermediate and Advanced, between 3.12 and 3.5. Some of the older students had had more experience in the world away from school, and therefore had some experience of official documentation, such as contracts of employment. The younger students gave scores between 2.73 and 3.04, showing their lack of experience of this sort of documentation. The S,D.s for this question

were low, with a high of 0.91 and a low of 0.68. This indicates a general agreement between all the students on this question.

There were some critical comments about the style of the units; "The use of English in some of the exams and assignments is unclear and confusing", *"sometimes difficult to understand"*. The comments are, though, generally better than in the pilot year, which underlines the improvements that have been made over the last eighteen months or so in the rewriting of the units.

Question 9 - Did you find the external tests; Easy (5) Difficult (1)

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
9 (External Tests)	3.63	1	3.52	0.9	4.49	0.8

Results - All Students

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
9 (External Tests)	3.78	1.02	3.68	1.08	4	0.9

Results - Intermediate Students

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
9 (ExternalTests)	3.04	0.68	3	0.53	3.25	0.87

Results - Advanced Students

The 18+ students gave a very high mean of 4.49 overall to this question, with all older students giving a higher mean than the younger students in both GNVQ groups. It has to be recognised, though, that the overall number of older students is a low percentage of the total. Some of the older students had experienced multiple choice examinations before, which could explain why they found the tests easier. The S.D.s were higher for the

Intermediate group than the Advanced, which points to the fact that a number of the Advanced students had experienced either Intermediate or Advanced Tests in the pilot year. These were the set of tests that were accepted as flawed, so the current tests would have appeared to the students as easier.

One student who had experienced both intermediate and advanced tests said "At intermediate level very easy, but advanced a bit harder". Another commented "*The tests are a lot easier this year*". Most of the advanced students said that they were confident of passing their tests this year, including the tests they had failed the previous year.

Question 10 - If you are working towards NVQ qualifications, do you think that this has; Improved your learning (5) Made it more difficult (1)

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
10 (NVQ Additional)	4.03	0.6	4.55	0.76	4.17	0.6

Results - All Students

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
10 (NVQ Additional)	4.03	0.67	4	0.75	4.25	0.9

Results - Intermediate Students

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
10 (NVQ Additional)	3.83	0.75	3.87	3.88	3.5	0.87

Results - Advanced Students

On the questionnaire this topic scored the overall highest mean of 4.03, with the intermediate students scoring the highest, and the older intermediate students the highest

of all, a mean of 4.55. The S.D. was low in all categories, except the older Intermediate students who gave a S.D. of 0.9. This indicates that there was general agreement between the students . There were some very positive comments; *"It is an extra pass"*, *"I enjoy more the practical part"*, *"it helps the GNVQ a bit"*, *"It does help"*. Some students gave preferences to either the electronics or the mechanical elements; *"I don't like metalwork"*. The students were able to opt out of the mechanical NVQ, but the Electronics NVQ was integrated with the GNVQ units of Electronics and Microelectronics. There were no negative responses to this question at all, either in the questionnaires or in the interviews.

The idea of running NVQs alongside the GNVQ seems to have been a popular and successful decision at this college, with both staff and students giving positive views about this integration. In particular, the Intermediate students were very enthusiastic about it. This college has tried to integrate the more theoretical GNVQ with the more practical NVQ in the areas of Electronics/Microelectronics and Mechanical Processes and it seems to have been a success.

Question 11 - How would you rate your satisfaction of the course so far; Very satisfied (5) Unsatisfied (1)

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
11 (Overall Satis)	3.52	0.7	3.45	0.7	3.63	0.6

Results - All Students

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
11 (Overall satis)	3.47	0.72	3.38	0.79	3.67	0.47

Results - Intermediate Students

	All Students		16/17 Yrs Students		18 + Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
11(Pverall Satis)	3.67	0.62	3.73	0.43	3.5	0.87

Results - Advanced Students

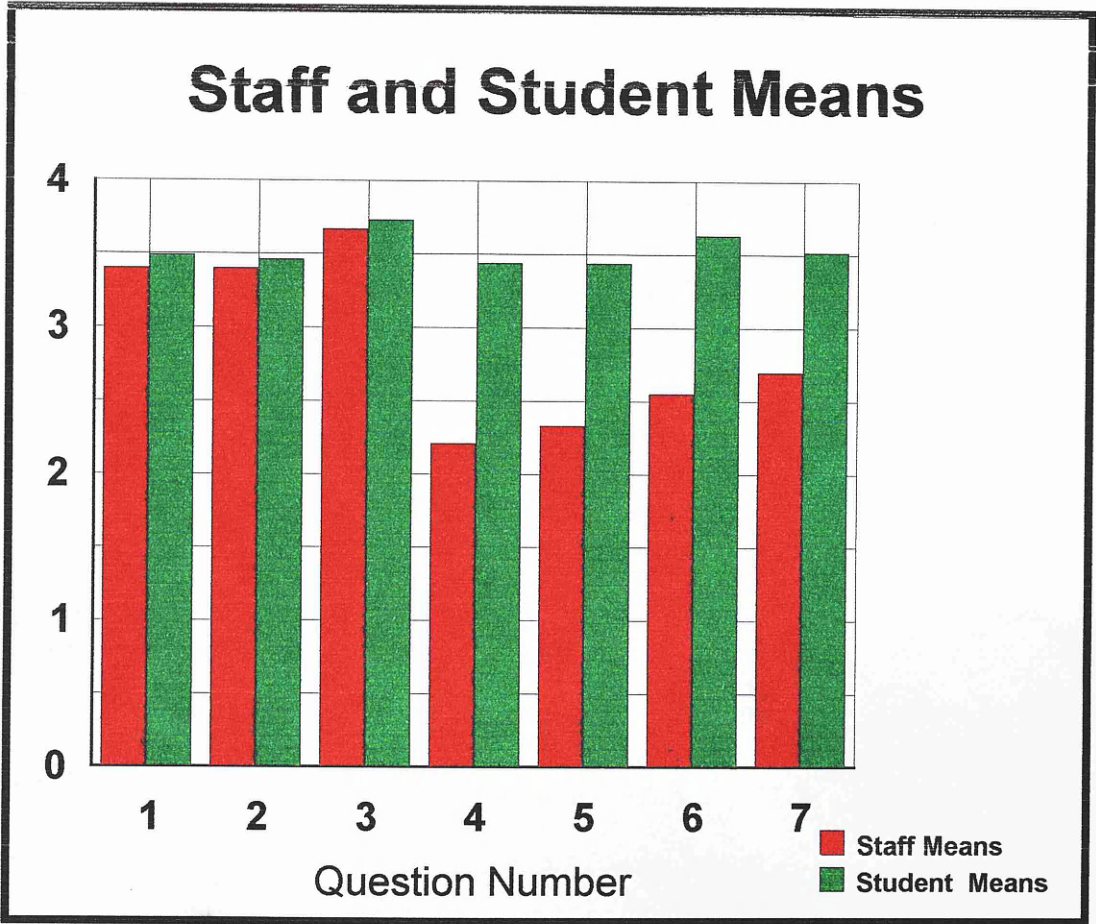
The results from the questionnaire, and from the interviews, indicate that the students at this college have a reasonably high opinion of the course with an overall mean of 3.52. The advanced students gave a higher score, at 3.67 compared with the intermediate score of 3.47. At the time of the interviews and questionnaire the second year advanced students had started to receive offers for university, which they were very pleased about, and these groups gave higher scores than the first year students.

There were mostly favourable comments from the students; "It's good to look at all the aspects of engineering", *"I really want to finish the course and go into the advanced"* (from intermediate student). There were interesting comments about comparison with 'A' Levels from second year advanced students who had started 'A' levels; *"The teaching is much clearer than on A levels, the Maths is much better"*, "It's good to study engineering before going to university".

In conclusion, the GNVQ in this college has been implemented in such a way for the students to be pleased, in the main. The staff felt that the improvements to the course since the pilots have been beneficial, which is also borne out by the National Survey Report from the FEFC (FEFC, 1995) which said that the quality of teaching and the promotion of learning is rising, and that the standard of work from successful students on advanced courses is broadly equivalent to that of students studying for 'A' levels. When examining the results from staff and students, the chart overleaf highlights the differences between staff and students in the questions common to both.

As the question numbers are different for staff and students, the following numbering system is used:

- Q1 Understanding Core Skills
- Q2 Opinion of Core Skills
- Q3 Understanding Grading
- Q4 Opinion of Grading Scheme
- Q5 Language of units
- Q6 External Tests
- Q7 Overall Opinion



When comparing these results from the staff against the students, there are some interesting points which are immediately apparent from the chart. The views about core skills and grading are similar, mainly positive, whereas the students have a much more positive view of the tests. This may well be a consequence of the fact that many of the students had not had experience of the first series of pilot tests which gave such appalling national results. Even though the tests have improved considerably the staff were still remembering and felt let down by the pilot year. Both staff and students were enthusiastic about the NVQ additional units that the college was running, and the staff felt that these had made a big difference to the success of the course.

The staff also had reservations about the way the units are written, although agreeing that they had improved since the pilot. The students were much more relaxed about this, probably due to the fact that they had nothing to compare against, and felt that this was the norm. It is also true to say that in the past students would not normally have been given the whole syllabus for any course, just the outlines. The staff, therefore, were able to keep tighter control of the curriculum, and aim any tests in the area they chose.

The staff had a low opinion when comparing the GNVQ against the old First and National Diplomas. Some of this is the natural resistance to change and so it is perhaps inevitable that the overall opinion was low. The students, however, had nothing to compare against and had a much higher overall opinion of the course. The staff had reservations about the overall course assessment, which has also been highlighted by the Capey report. It is also clear that the opinion about the course by this group of staff had improved since the Pilot year when the results of the Intermediate group was bad, with not one student obtaining a certificate. At the time of the research a number of the Intermediate students had passed

all three external tests, and the staff were sure that there would be a similar number of certificates awarded as for the previous First Diploma course.

Follow Up Survey

I decided to conduct a follow up study with the continuing students at College A to examine whether the opinions of the students have altered in any way after a period of time studying on the course. This study was conducted in January 1997, one year after the original survey, with the remaining Advanced students. The number of respondents was only 10, unfortunately, as there were 7 students who did not proceed to the second year. All 10 students completed a questionnaire, and I carried out a discussion with the group as a whole. For comparison I have used the results of the Advanced group from 1996 as the questionnaire was the same. Because the numbers are low I have not split the respondents into ages. The majority of the students were, however, over 18 years of age at the time of the follow up survey.

The fact that only 10 students continued into the second year of the course was a concern and is a national problem for Further Education, and GNVQ in particular, as described in Chapter 4. In this college by far the main reasons for the low continuing rate was the failure of the first year examination and course work, particularly in the more mathematical subjects. The results from the follow-up survey are shown on the following page:

Results from Questionnaire - Follow Up Survey

Question	1996 Advanced Students		1997 Advanced Students	
	Mean	S.D.	Mean	S.D.
2 (Core Skill)	3.49	0.60	3.89	0.87
3 (Core S good)	3.46	0.73	3.33	0.82
4 (Grading)	3.73	0.81	3.00	1.05
5 (Grade Opin)	3.44	0.65	3.20	0.87
6 (Insr Sheets)	3.44	0.82	3.78	0.79
7 (Lecturers)	3.92	0.90	3.78	0.79
8 (Unit Lang)	3.04	0.75	3.44	0.96
9 (External Test)	3.63	1.00	3.33	0.47
10 (NVQ Add)_	4.03	0.60	3.22	0.92
11 (Overall Satis)	3.52	0.70	3.13	0.56

The differences between the two years will be examined in turn.

Question 2 - Do you understand the Core Skill requirements of the GNVQ; Well (5)
Not at all (1)

1996		1997	
Mean 3.49	S.D. 0.6	Mean 3.89	S.D. 0.87

As can be seen the 1997 mean is a little higher than 1996. This was probably due to the fact that the students were all second year students by the time of the survey, and would have had time to assimilate the details of the Core Skill system. Both S.D.s are fairly low, indicating a broad agreement amongst the students. There was no specific comments about this question, all students agreeing that they understood Core Skills when asked.

Question 3 - Do you believe that the Core Skill requirements are a good idea? Good (5)

Bad (1)

1996		1997	
Mean	3.73	S.D.	0.81
Mean	3.00	S.D.	1.05

For this question the mean for 1997 is a little lower than in 1996, and there was a certain amount of disquiet voiced about Core Skills. The comments included; *"Basically a good idea"*. *"It's OK"*. The concern was over the fact that students need to complete all the mandatory Core Skills to pass the course, even if they are satisfactory in their technical work; *"I think that is bad because you can fail the course if not complete, but basically a good idea"*.

I think that now the students are approaching the end of their two years they are realising that ~~certain parts~~ of their work is not finished; *"I've still a lot of work to do"*. At the time of the questioning the students were effectively three quarters of the way through the course.

Question 4 - Have you understood the system for grading your work in the GNVQ; Well

(5) Not at all (1)

1996		1997	
Mean	3.44	S.D.	0.65
Mean	3.20	S.D.	0.87

This question, and question 5 (Grading opinion), caused the most comments of all from the students. As can be seen, the 1997 mean for understanding the Grading Scheme is

significantly lower than for 1996, with a high S.D. This is borne out by the varied comments recorded. One students said "Was not explained well enough until second year". Another said; "Only told how to go about doing the planning at the start of the second year". Students indicated that their understanding of the Grading Scheme had changed, in that it seemed harder to obtain higher grades; *"It is now harder to get more than a pass for planning"*. It would appear that either the system had changed or that the students appreciation had changed since the previous year.

In 1995/6 BTEC and the other awarding bodies issued a guide to obtaining the best third of a portfolio, which was used for final grades in 1996. These students were first year students in 1996, and so would not have been involved in this system. Now that they are looking towards their final grade, they feel that they have not been fully prepared for this.

Question 5 - What is your opinion of the Grading Scheme; Good (5) Bad (1)

1996			1997		
Mean	3.44	S.D. 0.65	Mean	3.2	S.D. 0.87

The 1997 mean for this question is again lower than 1996, but not so marked as the last question. Now that the end of the course was in sight the students' grades were becoming important to them. One student said "Not good because optional units like PLCs you can only get a Pass, otherwise good". This itself shows some confusion because the PLC unit is an Additional Unit, not Optional, and Additional Units do not count towards grading. The point of Additional units only being Pass was mentioned by other students; *"I have found that the*

marking system of F, P, M or D good, but also having subjects of marking F or P as being a bad idea": "All units should be marked in the same way, and separate grades given".

The comments above again point to the problem of an overall grade which was a feature of the main report, the system was found by respondents to be very complex. Students have clearly stated that they would prefer separate grades for individual units. As mentioned in the main report, the Capey Report has recommended changes to the system.

Question 6 - Have you found the instruction sheets for the assignments; Easy to follow

(5) Difficult to follow (1).

1996		1997	
Mean	3.44	S.D.	0.82
Mean	3.73	S.D.	0.79

The 1997 mean is a little higher for this question, with the S.D. about the same. There were no comments, other than "They're OK" concerning this issue, which indicates that the students were happy with the assignment sheets. After eighteen months of using them the students had become familiar and at ease with them, as they had not changed significantly since the first year.

Question 7 - Have you found your unit lecturers; Approachable (5) Unapproachable (1)

1996		1997	
Mean	3.92	S.D.	0.9
Mean	3.78	S.D.	0.79

The mean for this question in 1997 was slightly lower for this question than 1996, the S.D. slightly lower as well. Again there was a not a lot of comment, with no written comment at all. The students seemed to think that the lecturers were approachable, with one exception. As this is the second year, the students said that they had got to know the lecturers, particularly the ones that they saw several times a week, quite well. This meant that *"You can ask them for help"*.

**Question 8 - Have you found the way the GNVQ units are written; Clear (5)
Unclear (1)**

1996			1997		
Mean	3.04	S.D. 0.75	Mean	3.44	S.D. 0.96

The mean for this question was higher in 1997, with the S.D. higher. Again I feel that familiarity, after eighteen months, has helped the students with this. For one of the students there appeared to be differences between the units, "Some are, some are not" (clear). The students generally were happy with the units, *"I find them OK"*. *"They're all right"*.

Question 9 - Did you find the External Tests; Easy (5) Difficult (1)

1996			1997		
Mean	3.63	S.D. 1.00	Mean	3.33	S.D. 0.47

The mean for this question has decreased by a small amount, but not significantly so. The S.D. for 1997 is low, at 0.47, giving an indication that there was broad agreement amongst

the students. Although all students had attempted the tests at least once, some of them still had tests to do; "Still need to pass one other first year exam!". This student gave a score of 3, indicating that he did not think that the test were too difficult, even though he still had one to do after failing in the first year. Generally the comments from the students were indicating a measure of relaxation towards the tests, probably due to the fact that most of the tests had been passed. *"I think the tests were OK, I've passed all mine"; "I hope to pass the others in March"*.

At the time of the survey the students had an opportunity to take the tests again in the March series, with a fall back position in the June series. The students all thought that they would have passed all the tests by the summer.

Question 10 - If you are working towards NVQ Qualifications, do you think that this has; Improved your learning (5) Made it more difficult (1)

1996			1997		
Mean	4.03	S.D. 0.6	Mean 3.22	S.D. 0.92	

The mean for the 1997 survey is lower than for 1996, by a significant amount. The standard deviation is, however, higher, indicating that there is a broad view. When asked, the students complained of a lack of time to complete the NVQ units, particularly the mechanical units. Although an extra three hours was allowed by the college, outside the normal GNVQ timetable, the students felt they needed more. Comments included "Not enough time", *"I would like more time to finish"*. The Electronic NVQ was integrated within the GNVQ timetable and the students could achieve one unit of the NVQ, which could be included on

their GNVQ certificate. The main reason for a broad S.D. is that not all the students had chosen to complete the mechanical NVQ, so those who were only doing the electronic NVQ seemed satisfied with the provision. *"I'm enjoying the electronics, I should complete OK"*.

At the time of the survey the students had just had a review of their NVQ work, and as they were approaching the end of the course it seemed to have focussed their minds. Both the NVQs were spread over the two years of the course, and the students appeared to have worked relatively slowly. When told how much was still needed, it came as a shock. They seemed confident, however, that they would succeed.

Question 11 - How would you rate your satisfaction of the course so far; Very satisfied (5) Unsatisfied (1)

1996		1997	
Mean	3.52	S.D.	0.70
Mean	3.13	S.D.	0.56

The mean for this question in 1997 is slightly lower than in 1996, with the S.D. indicating broad agreement by the students. The students said they were generally satisfied with the course, but were worried about the future. *"I've enjoyed the course and I hope to go to University"*. *"OK so far"*. Several of the students had outstanding external tests, and were understandably concerned about this as discussed in question 9. I think that if the students had been asked later in the year, after they had passed the tests, the mean would have been higher.

One student was concerned about the amount of coursework; *"There's a lot of work still to be done"*. Some students said they had outstanding work from the first year, held over because of a staff resignation; *"I still don't know about electronics from the first year"*.

Over all, though, the students said they were happy with their choice of the GNVQ course. They said that they were mainly pleased with the way it had gone. The follow up survey has shown that the students views had not changed significantly over the twelve month period. The differences in the scores can be explained by the change in circumstances from being a first year student to that of a second year. This is mainly in the application for University places, which happens in the first term of the second year, and the awareness that the end of the course seems to accelerate as you approach it. The most telling point is, I feel, that the students were happy with their choice of the GNVQ over other options they had investigated, two years before.

Research Results - College B:

College B is a college in Southern England, with a medium sized technology facility of about 20 staff. The college runs one group of Intermediate students and one group of Advanced 1st year and second year students, with approximately 12 students in each group. There are 8 members of staff who teach on the programmes, and they all completed a questionnaire, the same as in College A. Two members of staff were interviewed using the same format as in College A.

Five advanced students were interviewed which were the only students available during my visit using the same format as before, and 18 students completed a questionnaire, about 60% of the total population. Because of the relatively low numbers of respondents the samples have been treated differently than from College A. Standard Deviation for the staff has not been calculated, and, because most of the staff teach on both programmes, the results do not include a separate column for Intermediate and Advanced staff. The results of the questionnaires for the students have not been distinguished between Intermediate and Advanced, again because of low numbers. I am sure that this is valid because of the fact that the results of the very large sample of over a hundred students in College A did not give significantly large differences between Intermediate and Advanced students. The students have, however, been given results for the age split, 16/17 years and 18+ years, as there were a number of older students, the oldest being 53.

The research findings of staff and students will be analysed in turn, and then compared one against the other

STAFF

Results of Staff Questionnaires

The Questions were as follows:

2. Do you understand the Core Skills requirement of the GNVQ; Well - 5, Not at all - 1
3. Do you think the Core Skills requirement are helpful or unhelpful to the students' progression to employment or H/FE; Helpful - 5, Unhelpful - 1
4. How well do you understand the Grading system? Well - 5, Not at all - 1
5. What is your opinion of the Grading Scheme? Good - 5, Bad - 1

- 6. Have you found the way the GNVQ units are written; Clear - 5, Unclear, 1
- 7. Do you think the external tests are; Reasonable - 5, Unreasonable - 1
- 8. Have you found the staff development you have received; Helpful - 5, Unhelpful - 1
- 9. How would you compare the GNVQ against the National and First qualifications; Better than - 5, Worse than - 1
- 10. How do you think the GNVQ is preparing students for Higher/Further Education?
Well - 5, Badly - 1
- 11. Do you think the GNVQ is preparing students well for employment; Yes - 5, No - 1
- 12. If your students are studying for an NVQ as part of the course, do you think this has enhanced their learning; Well - 5, Poorly - 1
- 13. What is your opinion of the course so far? Good - 5, Bad - 1

As mentioned above, the results give the means only.

	All GNVQ Staff
Question No.	Mean
2	3.75
3	3
4	2.88
5	1.5
6	3.25
7	3.29
8	2.63
9	1.5
10	1.75
11	2.25
12	3.4
13	2.29

Results of Staff Questionnaires

The effectiveness points for College B will be looked at in turn. Comments from the interviews will be written in *italic*, and written responses will be in normal print.

Question 2 - Do you understand the Core Skill requirements of the GNVQ; Well (5)

Not at all (1)

Q2 Mean 3.75

The results from the questionnaire show that generally the staff felt that they understood the Core Skills element of the GNVQ with a mean of 3.75. This was borne out by the interviews and the written comments. One member of staff felt that "*the concept is good, and good for employers*"; "*An excellent idea*". One felt that "*understanding does not necessarily mean I can work out how to implement the requirements*". Another lecturer wrote that the Core Skills were "*too closely defined with tasks that do not always fit easily with the mandatory units*". This comment was echoed by other lecturers. It was felt that the understanding of the requirements of the Core Skills, within the vocational context, was important.

Question 3 - Do you believe that the Core Skill requirements are helpful or unhelpful to the students' progression to employment or F/HE; Helpful (5) Unhelpful (1)

Q3 Mean 3.0

This question gave a lower mean than for question 2, indicating that the staff understood the Core Skills better than they viewed their helpfulness for students progress. During the interview one member of staff said that the Core Skills units were an *"assessment straitjacket"*, and another wrote that "they must not be considered of greater importance than the technical knowledge and skills". One lecturer cast doubt on the relevance to employers/H.E. "Employers/H.E. seem to ignore Key Skill performance in selecting completing students for either work or further studies", whilst another felt that employers would find them useful in that employers may ask; *"Can they write letters?"*

In engineering it was felt that the Core Skills numeracy unit "is at a lower level than GNVQ maths". Another concern was on the validity of the evidence; "the idea that the students have to show a piece of work for the skill does not mean that the level is normally achieved". One member of staff also said of the new units (1995) *"changes have not made much difference"*. There was a general concern at the relevance of some of the skills for engineering students, whilst acknowledging the usefulness of the Core Skills in other vocational areas, where subjects like Maths and I.T. were not part of the normal GNVQ curriculum.

Concern was also felt about the integration, in that with the First and National Diplomas Common Skills were integrated across the curriculum whilst, in the GNVQ, *The evidence*

means less integration", although the Core Skills were delivered within the assignments where possible. Concern was also expressed about the advent of Key Skills; *"Key Skills will mean even less integration"*. This is referring to the fact that in the future students may be able to study Key Skills as separate stand alone units under the provisions of the Dearing Review. The staff generally felt that the Common Skills idea of integration was good for the students.

Question 4 - How well do you understand the system of grading students' work; Well

(5) Not at all (1)

Q4 Mean 2.88

It can be seen from above that the grading system did not score well in the questionnaire, and this was borne out in the interviews. One member of staff said *"Understand the system? not very well, no"*. This sentiment was echoed by others.

One problem was that different advice had been received from different advisers, e.g. BTEC verifiers. "This has not been explained to the staff nor have BTEC adequately explained it". "Do NCVQ understand?". The idea that the best $\frac{1}{3}$ of a portfolio of evidence being used for grading also had caused concern, "I'd still have to argue with a lawyer about the best $\frac{1}{3}$ ". Staff also thought that the GNVQ style did "not fit in with employer / H.E. / the man in the street's understanding of the meaning of merit etc." *"We get different advice from verifiers, and the standard is variable"*. It was generally felt that the system was too complicated, which led to the system being difficult to understand.

Question 5 - What is your opinion of the Grading Scheme; Good (5) Bad (1)

Q5 Mean 1.5

The mean score for this question was very low, indicating that the general opinion was poor. One member of staff said *"The scheme is awful"*, which was a common view expressed by staff, particularly of the 'flow chart' method of obtaining an overall grade introduced in 1995, which means that grades are reduced to the lowest common denominator. This led one member of staff to say; *"How is this National Programme coming up with National Standards?"*

The validity of the system was also brought up "too complex, probably caused by attempting to make it general purpose across all programmes": "Teachers can fiddle the grading to make themselves look good-- see some schools". The last comment referring to BTEC having different rules for the different sectors, H.E., F.E. and the schools. The staff also felt that the grading scheme did not help reward the technical content of students' work particularly in engineering. "The emphasis is on the general process not on the degree of competence with the technical detail". An important fact about grading emerged, which was that the college and the External Verifier worked together to ensure that the students did not suffer from the complex grading structure. *"We and the (external) verifier are pragmatic about grading"*.

The general view from the staff was of disappointment that the grading scheme did not help the students, and that the old system, from the National/First Diploma days, was superior in

that it gave recognition to good technical work that the students completed. This, it was felt, was particularly important in engineering.

Question 6 - Have you found the way the GNVQ units are written; Clear (5) Unclear (1)

Q6 Mean 3.25

There was general agreement that the language of the units had improved from the pilot year, but there was some disagreement to the clarity of the units. "Very clear, but the emphasis on assessment is far too great", "variable, some units allow selection whilst others are very prescriptive". This emphasises the general opinion of those who teach on more than one unit that there are differences between the units. One lecturer felt that he had become familiar with the GNVQ pattern, when giving a 4; *"But I've been reading and interpreting them for 3 years now"*. Another comment was "Competence format is as good as principal objectives, but the tracking and recording is a burden".

It seems that there is still reservations about the assessment burden placed upon lecturing staff, which, rather surprisingly, came out from this question. Even since the change from assessing each performance criteria, as in the pilot year, staff still feel that the amount of recording is still too great. This has also been a criticism of the Capey report, published in December 1995.

Question 7 - Do you think the external tests are; Reasonable (5) Unreasonable (1)

Q7 Mean 3.29

The staff acknowledge the fact that the external tests are now easier than those of the pilot year; *"Too difficult previously"*, but now show some concern that they are now too easy. "The tests area a farce! the level of technical knowledge is so low as to be below general knowledge and common sense". Another concern was what the tests are designed to do; "For setting a base level of Appreciation and application they are acceptable, as a test of knowledge - no good." "What is really tested is a student's ability to understand/comprehend the English language used".

The style of the multiple choice questions was also commented upon; *"It is too easy to work backwards from the choice of answers given"*, this comment given more than once. The implication of this is that students can obtain a correct answer without understanding the mathematical principle involved, which, it was felt, was the purpose of the tests. It was stated that *"Assignments would do more for setting National Standards"*, another point raised by the Capey Review.

Question 8 - Have you found the staff development you have received; Helpful (5) Unhelpful (1)

Q8 Mean 2.63

This question scored low on the questionnaire, with a few fairly high scores, 3 and 4, but mainly low, 1 or 2. On interview the reasons for this became plain. What staff development that had taken place consisted of one or two members of staff going to events organised by outside providers, such as BTEC. It appears that any information received was not disseminated adequately to the other members of the teams. Comments were received, like; *"Very little staff development"*, *"Staff development is very important"*. *"Very little received"*. The standard of staff development was also brought into question, *"Confusing - the blind leading the blind"*.

A major problem found by the staff was that of different interpretations about the GNVQ process. It seems that when members of staff had attended events, the information was confusing. *"On average, what staff development was have had has been useful BUT where topics have been covered by 2 or more presenters we have had been getting different stories"*. Whilst acknowledging the importance of it, the staff emphasised that if there is to be staff development it has to be effective for all members of staff.

Question 9 - How would you compare the GNVQ against the National and First Qualifications; Better than (5) Worse than (1)

Q9 Mean 1.5

This question gave the equal lowest score on the questionnaire, and the comparison was very strongly voiced during the interview. National Diplomas, it was felt were more successful; *"Students were better motivated before"*, *"there was a higher success in National Diploma"*.

It was felt that the GNVQ lacked credibility in the world outside "very little academic credibility at all". GNVQs were said to be *"too thin"*, and *"all things to all people"*.

There was an additional problem in motivating students for the course work after exams have been sat, "worse in that the students do not focus on course work in the way that they focus on exams." Once students have passed an external test, they have a tendency to think that they have passed the unit. This college seems to have a difficulty in getting this across to students.

Question 10 - How do you think that the GNVQ is preparing students for Higher Education; Well (5) Badly (1)

Q10 Mean 1.75

As can be seen, the staff did not feel that the GNVQ prepared students well for H/FE, giving another very low score. There were a number of 1s, and one lecturer summed up the situation when asked how well the GNVQ was preparing students; "For University - very badly; for H.E. - just badly". Another said, on interview, *"There has been a negative press - which hasn't helped students"*. Lecturers have obviously been listening and reading about the GNVQ as it was reported "anecdotal evidence suggests Nationals are better".

There was also some concern about how students will cope with H.E. because "they don't really have to understand", referring to the emphasis on coursework which, it was felt, was not as good as Firsts and Nationals with the End Tests.

Question 11 - Do you think that the GNVQ is preparing students well for employment;

Yes (5) No (1)

Q11 Mean 3.25

It was felt that the GNVQ was better for employment than H/FE, as the mean suggests. The method of obtaining evidence in GNVQs, it was felt, meant that "they are given more responsibility", this lecturer gave a score of 4. It was also felt that the GNVQ was effective only when "combined with appropriate additional units" Some low scores were seen, together with negative comments such as *"Should the question read unemployment?"*. This question was combined, by many respondents, with the next question regarding NVQs.

Question 12 - If your students are studying for an NVQ as part of the course, do you think this has enhanced their learning; Well (5) Poorly (1)

Q12 Mean 3.4

This question gave the second highest score, and indicates a more positive response. This college has only offered the NVQ from the second year of operation, but the staff felt that it had enhanced the qualification. It was felt that "it gives a practical element", and that this makes *"retention good"*. It was also felt that the scheme was a *"good idea"*. As will be seen later on in the chapter this was echoed by the students.

Question 13 - What is your opinion of the course so far; Good (5) Bad (1)

Q13 Mean 2.29

The scores on the questionnaire for this topic were very polarised, with 1s and 4s, with one 2 and one 3. One member of staff said that "the effort has been skewed from teaching and promoting learning to assessment and getting students a qualification". There was an indication of a reluctance to change, with the comment; *"we did not have a choice about changing to GNVQ,"* with the implication that they would not have done so if given the choice. I feel that this is partly due to the normal resistance to change which is always felt when implementing innovations.

The management of the college did not appear to have discussed the proposed piloting of the GNVQ with staff, which always involves extra time and effort by members of staff, and this led to them feeling resentful. This became apparent during my visit. The patchy use of Staff Development certainly was a factor in the poor overall opinion the staff gave of the course.

STUDENTS

The student questions were:

Q2. Do you understand the Core Skill requirement of the GNVQ; Well (5), Not at all (1)

Q3. Do you believe the Core Skill requirements are a good idea? Good (5), Bad (1)

Q4. Have you understood the system for grading your work in the GNVQ; Well (5), Not at all (1)

Q5. What is your opinion of the Grading Scheme; Good (5), Bad (1)

- Q6. Have you found the instruction sheets for the assignments; Easy to follow (5), Difficult to follow (1)
- Q7. Have you found your unit lecturers; Approachable (5), Unapproachable (1)
- Q8. Have you found the way the GNVQ units are written; Clear (5), Unclear (1)
- Q9. Did you find the External Tests; Easy (5), Difficult (1)
- Q10. If you are working towards an NVQ qualification, do you think that this has; Improved your learning (5), Made it more difficult (1)
- Q11. How would you rate your satisfaction of the course so far: Very satisfied (5), Unsatisfied (1)

Results of Student Questionnaires

	All Students		16/17 yrs Students		18 plus	Students
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
2	3.78	0.92	3.69	0.91	4.25	0.83
3	3.82	0.62	3.63	0.48	3.8	0.4
4	3.39	0.83	3.45	0.89	3.5	0.67
5	3.44	1.01	3.45	1.16	3.2	0.4
6	3.53	1.04	3.27	0.96	4	1.1
7	4.11	0.81	3.91	0.79	4.6	0.49
8	3.17	0.83	3	0.95	3.4	0.49
9	3.75	0.83	3.88	0.93	N/A	N/A
10	3.8	0.75	3.89	0.87	3.8	0.4
11	3.89	0.94	3.73	1.05	3.8	0.4

The effectiveness criteria will be looked at, as for the staff, in turn according to the question headings.

Question 2 - Do you understand the Core Skill requirement of the GNVQ; Well (5) Not at all (1)

	All Students		16/17 Years students		18+ years students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
2 (Core skills)	3.78	0.92	3.69	0.91	4.25	0.83

The means for this question indicated a reasonably good overall understanding of the Core Skills requirement, with the older students giving a very high mean. The S.D.s are fairly high, though, indicating a broad spread of opinion. Several students gave a score of 5, and these were all students over the age of 18. The lowest score was 2, from a 16 year old student. These results were borne out on interview, with older students giving a more positive view than the younger student, who were more ambivalent about Core Skills. The students did not claim to understand perfectly; *"I wouldn't say that I have a perfect understanding"* but they did know what they were *"I can name the Core Skills"*. These were the mandatory Core Skills, the students did not know about the additional Core Skill units.

Question 3 - Do you believe that the Core Skill requirements are a good idea?; Good (5) Bad (1)

	All Students		16/17 Years students		18+ years students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
3 (Core sk good)	3.82	0.62	3.63	0.48	3.8	0.83

The overall mean for this question was higher than for question 2, but with a lower S.D., indicating that the students do feel that Core Skills are a good idea and that there was broad

agreement between the students. In this case there is no marked differences between the age groups, which was again borne out by the interview with the students. The students were happy with the way the Core Skills had been implemented by the college; *"From the time that we've been here I don't have any complaints about the way things have gone so far"*.

The students said that the Core Skills were useful for work because *"They are the things you do every day, your work is always going to involve numbers"*; *"You've got to communicate with people, haven't you?"*. They did not think, however, that the Core Skills were more important than the main qualification *"Not above your proper qualification, I don't think"*. *"I think a lot of employers want ONC or HNC"*.

Question 4 - Have you understood the system for grading your work in the GNVQ;

Well (5) Not at all (1)

	All Students		16/17 Years students		18+ years students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
4 (Grading)	3.39	0.83	3.45	0.89	3.5	0.67

The means for this question do not vary significantly with the ages of the students, and the S.D.s are relatively low, which indicates that the students understand the grading system reasonably well. When interviewed, however, the students interviewed were not so positive about understanding the grading system. When asked whether they understood the grading system the replies were; *"not really"*. They understood, in the main, what the grades were but how the overall grade was arrived at was rather hazy.

The terminology seemed unclear with; *"when you say grading do you mean pass, merit and distinction?"*. The problems with staff understanding the system seemed to have reached the students, *"we have heard recently that there are a few wrinkles with grading"*.

Question 5 - What is your opinion of the Grading Scheme; Good (5) Bad (1)

	All Students		16/17 Years students		18+ years students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
5 (Grading good)	3.44	1.01	3.45	1.16	3.2	0.4

The overall mean for this question was higher than for question 4, but not significantly so. The older students gave a lower mean, with a low S.D. indicating that the older students did not have as high opinion as the younger students. The S.D. for the younger students was high, with scores ranging from 1 to 5, indicating that some of the students had a low opinion of the scheme. The students indicated, in the interview, that they felt the paperwork involved was confusing, and that they hadn't been told exactly what to do. They felt that *"If we don't make a good job of filling them in (the assignment forms) we don't get the marks we're looking for"*. *"It's the front sheet, really, that makes the difference"*.

The students also said that the most important thing seemed to be the plan; *"If you don't lay the plan out correctly, if that's not accepted as a good plan, that could affect your overall marks of the work, which I feel is wrong."* The fairness of grading was questioned, with higher grades given to work word-processed. *"A person word-processed his work got all merits, and he was the only one to get merits on that assignment"*. It could be that the person doing the work was justly awarded merits, but the students' impression was that the

system was unfair. This feeling of unfairness was compounded, in the students eyes, by the complexity of the system.

Question 6 - Have you found the instruction sheets for the assignments; Easy to follow
(5) Difficult to follow (1)

	All Students		16/17 Years students		18+ years students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
6 (Instr Sheets)	3.53	1.04	3.27	0.96	4	1.1

The overall mean for this question showed that the students felt the instruction sheets for their assignments were reasonably easy to follow but the high S.D. in all categories indicates a wide range of opinion. Examination of the questionnaires showed that there were three scores of 2, three scores of 5, but no lowest score. The older students gave a higher mean, probably due to the fact that they had come across similar types of work sheets, in other contexts, before they came to the college.

There were no specific comments in the interview about this topic other than that indicated in other answers, particularly that of grading, when the students felt that the overall burden of paperwork was taxing.

Question 7 - Have you found your unit lecturers; Approachable (5) Unapproachable
(1)

	All Students		16/17 Years students		18+ years students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
7 (Lecturers)	4.11	0.81	3.91	0.79	4.6	0.49

The mean for this question is high in all categories, with all the S.D.s below 1, indicating a general consensus of opinion. This positive view was borne out within the interview.

When asked the question the response was *"Yes, but depends on the day"*. *"The course tutor has been about the most helpful"*. The younger students had found college quite different from school, in terms of how the staff treated them; *"At school, if you missed a lesson, they (the teachers) would find out where you are, but here they don't seem to mind"*. Most of the time the students enjoyed being treated more as adults, *"In some ways yes and some ways no. If you don't like a lesson you can just wander off, they just don't care"*. They recognised, however, that unless they worked they would not achieve a certificate. *"Basically its up to us at the end of the day"*. The younger students felt that they prefer the staff approach at college rather than at school.

Question 8 - Have you found the way the GNVQ units are written; Clear (5) Unclear (1)

	All Students		16/17 Years students		18+ years students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
8 (Unit written)	3.17	0.83	3	0.95	3.4	0.49

All the means for this question indicate that the students do not find the way the GNVQ units are written are a problem. The overall S.D. is relatively low, and for the older students is only 0.49. The older students mean is higher than the overall, again probably due to their general experience in the world.

During the interview there was no specific comments about this question, only that the students found the way the units are written *"OK"*. The students interviewed had not been at

college when the first set of units for the Engineering GNVQ were used, the pilot. It was those that caused the majority of the adverse comments recorded earlier.

Question 9 - Did you find the External Tests; Easy (5) Difficult (1)

	All Students		16/17 Year Students		18+ Years Students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
9 (External Tests)	3.75	0.83	3.88	0.93	n/a	n/a

The overall mean for this question showed that the students thought that the external tests were relatively easy. Several of the older students did not complete this question, which made the sample too small to determine a realistic mean and S.D. for the 18+ category. The score indicated that the students thought the tests were on the easy side, and, as in the previous question, were not involved in the pilot tests which were acknowledged to be unsatisfactory.

The students interviewed had not, at the time of the interview, officially taken an external test, but had taken some past papers. The comments about the past papers were generally encouraging; *"It was not too bad, you have a 1 in 4 chance of getting it right"; "If you know what you're doing in some of the questions, you're fine."* One of the students voiced a concern that if the coursework was very good, the students would still fail the course if he/she failed one of the tests; *Irrespective of how good your coursework is, you could still fail. You always have more pressure when sitting an exam".*

Under the previous National Diploma scheme, a student could get a Certificate of Achievement if he/she failed an essential unit. Also under the National Diploma scheme students could generally fail a unit and still achieve a Diploma. *"If you have one subject you've definitely had trouble with, this is as I understand it now, you come to the last paper*

you fail that, you fail the whole GNVQ. What's demoralising then is that you've wasted two years."

Question 10 - If you are working towards NVQ Qualifications, do you think that this has; Improved your learning (5) Made it more difficult (1)

	All Students		16/17 Years students		18+ years students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
10 (NVQs)	3.8	0.75	3.89	0.87	3.8	0.4

All three means for this question were high, and the S.D.s mainly low, indicating that the students found the NVQ input to the course useful. When asked on interview whether they enjoyed doing the NVQ the response was encouraging, *"Yes, it breaks it up, really."* The practical work, the students felt, enhanced the theory that they were doing. *"We do tons of theory, so its good to actually do something".*

The students were only doing the mechanical NVQ, with electronics coming in the next year. They were studying Electrical Principals, but had not carried out any practical work on the electrical side. They were looking forward to practical work in electronics in the next year.

Question 11 - How would you rate your satisfaction of the course so far?; Very satisfied (5) Unsatisfied (1)

	All Students		16/17 Years students		18+ years students	
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.
11 (Overall Satis)	3.89	0.94	3.73	1.05	3.8	0.4

The means show a high score for this question, but with he younger students giving a high S.D. The older students gave a low S.D., indicating a common opinion of satisfaction for

this group. The younger age group gave three scores of five, but also two scores of 2. This shows the reason for the high S.D.

When interviewed, the comments were generally favourable about the GNVQ; *"I think it's been very good"*. The students liked the way the course was run, *"You usually get a fair bit of time for coursework, so if you miss a day you get a chance to catch up"*. The students found that at the beginning of the course they were not given enough information to carry out coursework, *"We didn't have enough time to understand it"*.

They also found that not enough time was given to computer work; *"There was a lack of tuition on computers"*. The students, at the time, were encouraged to use I.T. equipment, which went towards their common skills. The students also thought, from the way the course was advertised, that there would be more practical work; *"You thought it would be much more practical"*.

The overall opinion was *"I'm enjoying it really"*, *"I am enjoying it"* but that there were areas where problems occur; *"Maths is very difficult"*, this from one of the mature students, who said it was many years since he had studied any maths. The students said that it was all right if *"There is information to back it up, it makes it easy for us"*. There was concern over the number and quality of the books in the library; *"The books are pretty dated, there is only about one or two books up to date for each subject"*. It was again emphasised that information at the beginning of the course was essential; *"I think if we could have understood more how we needed to lay the work out, a sample perhaps, it would have been better"*.

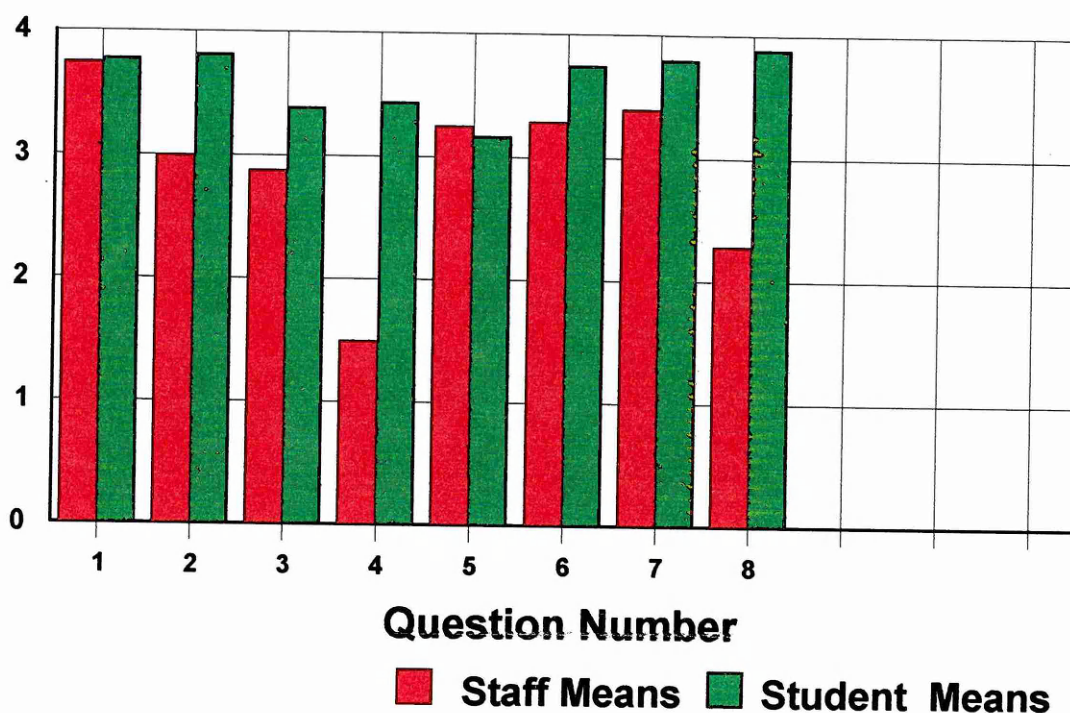
Overall, though, the students were very positive about the course and said that they were looking forward to completing the GNVQ. When asked, the students interviewed were split between employment and Higher Education for their future careers. They also thought that they had an option, which meant that they could choose between the two.

In conclusion, the research at this college showed a general student satisfaction with the course, with misgivings from the staff. I will examine the effectiveness criteria in turn, starting with the criteria that effects both staff and students.

When examining the results from staff and students, the following chart highlights the differences between staff and students in the questions common to both. As the question numbers are different for staff and students, the following numbering system is used:

- Q1 Understanding Core Skills
- Q2 Opinion of Core Skills
- Q3 Understanding Grading
- Q4 Opinion of Grading Scheme
- Q5 Language of units
- Q6 External Tests
- Q7 Additional NVQs
- Q8 Overall Opinion

Staff and Student Means



As can be seen from the chart, the students' opinion is higher in every category, with the difference being very significant in some areas. Both staff and students indicated that they generally understood the Core Skills, but had some reservations about their usefulness. The staff felt that, for engineering students, skills like Application of Number bore little relevance, and that the skills should not take precedence over the technical units. The students also agreed with this, but thought that the Core Skills were a good idea in general.

The system for grading was not popular at all with staff, and the students had problems with the system as well. The staff indicated that they did not fully understand the system, particularly the idea of one third of the portfolio and how that should be obtained. The

students were happy that they understood the system, but, of course, did not have to make grading decisions themselves.

When it came to the opinion of the grading scheme, the staff gave a very low score in the questionnaire, and on interview. The problem for the staff was the complexity of the system, and the way the scheme is implemented. The students' opinion was much higher, but with misgivings, particularly the fact, as they saw it, of the bureaucracy of the system. This gave rise to a feeling of unfairness, agreed by all students interviewed.

The way in which the GNVQ is written obviously effects both staff and students. The staff were agreed that the language of the units had improved since the pilot year, but still had misgivings over how the units were structured. They were generally agreed that the assessment of each element, as opposed to each performance criteria, was a positive move since the pilot year. The students had had no experience of the pilot units, and felt that the language of the units was generally OK

When examining the results for the external tests, it was clear that the staff felt that there had been an improvement since the pilot year. Indeed, some staff indicated that in some tests the questions were not demanding enough, a complete reversal from the pilot. They also felt that the tests did not adequately test knowledge, and were more about the ability to work backwards to find answers.

The students gave a similar score to this question, and also thought they were relatively easy. It has to be noted, however, that those students interviewed had not attempted an official external test, but had practised with past papers. The concern for the students was that they

had to pass the external tests regardless of the quality of their coursework, and could fail the course for that reason.

The participation in NVQs as part of the GNVQ was popular with both staff and students, with both sets of participants giving a high score. The staff felt that it offered a welcome practical element to the course, which helped with retention. The students also enjoyed this practical element, and that this helped with understanding the theory, which is the major part of the GNVQ course.

The staff gave very low scores in the questions regarding the preparation of students for employment and Further and Higher Education, and they felt that the National and First Diploma qualifications were better for students. All three of these criteria gave considerably lower scores than for College A. College B also gave a lower score for Staff Development, and some complained that they had not received any, which made it difficult for them to understand the philosophy of the course. It may be, of course, that the staff had been reluctant to attend any training provided by BTEC because of their high opinion of the National and First Diploma and not wanting to lose them. This possibility has to be taken into account when examining the data.

A major difference about the GNVQ from other type of programme is the gathering of evidence to cover the course, and the Instruction Sheets used are very important for students. The students generally found these to be acceptable and found the language the GNVQ assignments were written in acceptable. They did not have much to say during the interviews about them. The main point they raised was the large amount of paperwork involved with the GNVQ.

The students gave a very high score for the approachability of their lecturers, and their comments during the interviews were mainly favourable. They said that they enjoyed the difference between school and college, and the fact that they were treated more as adults, who were responsible for their own futures.

When the overall opinion of the course is examined, the students gave a much higher score than the staff and generally gave a very positive opinion during the interviews, although outlining their perceived problems about the course. These were, however, minor when considering their overall satisfaction. I am sure that the main reason the students gave a high score for this category was lack of any comparison, except school. None of the students had experienced the National or First Diploma in Engineering, and so the GNVQ was the first engineering course they had attempted.

The staff gave an almost opposite view to that expressed by the students, with concern expressed about the change to gathering evidence and assessment. The main problem for them, in my view, was the forced change from the very popular National and First Diplomas to the GNVQ. The resentment from this has undoubtedly clouded the judgement of the staff. It has to be noted, though, that this resentment doesn't seem to have been passed on to the students who were very positive about the course.

The next chapter will outline the analysis and conclusions that I have gained from the data, both from the empirical data and other information that has been obtained from other sources.

Chapter 6 - Discussion and Conclusions

This chapter contains the conclusions from the research results reported in the previous chapter, and focus around the effectiveness parameters detailed in Chapter 1, which are;

- The Core Skill System
- The use of Grading Themes
- Clarity of the units
- External Testing
- NVQ Provision
- Access to Higher Education and Employment
- Comparison between First and National Diplomas

These parameters will be analysed in turn.

1. Analysis of Results

Core Skills

It was clear that all the respondents from both colleges felt that the core skills system was a good concept, that skills such as Communication and Information Technology are important in today's technological world. All parties, however, agreed that the assessment of these skills was difficult to achieve as BTEC and NCVQ intended, because the method of extracting the skills from unit assignments was thought to be bureaucratic and time consuming.

There was, however, a perceived problem with the Engineering GNVQ for the staff, and

that was that some of the skills are covered in the units. This was particularly true of the Application of Numbers unit and Information Technology unit. The students have a possibility of taking four stand alone mathematics units in the Advanced course, and Science and Mathematics and an optional mathematics unit in the Intermediate course. These units were way above the standard of numeracy required for the appropriate core skills units. In the area of Information Technology students covered much of the content of the core skills unit in their technical units. Staff acknowledged, however, that this was not the case in other areas of GNVQ where core skills would have more relevance.

The staff also made the point that students moving into Higher Education had found that the HE institutions were unclear about core skills in GNVQ. The students also felt that the core skills were not as important as the main technical content of the course, that they were mainly covered in the course as it progressed. The link between the vocational units and core skills was also questioned by the staff, in that as currently written they did not easily lead to integration.

A direct comparison can be made between the core skills units and the Common Skills units from the BTEC First and National Diplomas that were studied previously. One major feature of the Common Skills was the integration across units, which staff favoured highly. In fact when the Common Skills were first introduced the units were subsumed within a Programme of Integrated Assignments (PIA) which were run within the course timetable. Staff voiced the opinion that this integration was a successful feature of the First and National Diplomas. It was generally felt that core skills were assessed as a results of the unit assignments and not assessed as skills in their own right. Staff marked an assignment for the evidence indicators for the appropriate element, and assessed core skills afterwards,

almost as a second thought. This, of course, does not help with the aim of a nationally validated system that can compare with 'A' Levels. This problem will be addressed more fully later.

Grading

The system of grading students' work came in for a lot of comment in writing and during the interviews. These comments were both from students and staff, and were agreed across the colleges.

All involved during the pilot in 1994/95 agreed that the system was too complex and the revised system introduced in 1995/6 also caused problems but, it was generally agreed, was an improvement although it also was found to be too complex. NCVQ issued guidelines to assessment in 1995 ready for the academic year 1995/96. The guidelines included some examples in the method of arriving at a final grade for the student. Staff commented that it was very difficult to arrive at the best third of a portfolio, and the "flow chart" system of arriving at a grade described in the guidelines penalised the student in that it always drove down the grade with a logical "AND" system (NCVQ, 1995b)

Both students and staff said that an overall grade did not give a true reflection of a student's good points. In engineering units like Mathematics, Science and Electronics carry more weight to an outside body than other units, and so if a student excelled in Mathematics but not in other units this is reflected in a poor overall grade. Course Tutors said that they had been asked by Higher Education Admission Tutors, who were not satisfied with an overall grade which did not tell them what they wanted to know, for marks (percentages) for individual units. One course Tutor even said that he had

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"invented" percentages for a Higher Education Institution Admissions Tutor to assist a student gain a place. The students from both colleges said that the method of grading relied on paper evidence, in terms of action plans, when good practical technical work seemed to count for less. They, the students, labelled the scheme unfair. All the staff said that individual grades for units should be introduced.

My investigations have shown disturbing aspects of the verification of grading, which is essential for the arrival at national standards. This first came to light when one of the staff said that he and the external verifier were "pragmatic" about grading. It appeared that this meant that the verifier did not look too closely at portfolios to check whether the evidence met the national standard, but relied on the view of the college. When investigated, this appeared to be true in the other college as well. This was defended as ensuring that the student did not suffer because of the new course, and the grade was given equal to what the staff would have expected a student to achieve on a First or National Diploma course. This was particularly true for students completing an Advanced course, who were hoping to move into Higher Education. The staff maintained that they knew what the students could have achieved because of their experience in assessing a National Diploma course.

Anecdotal evidence, gained from conversations with external verifiers as part of my position as an Assistant Head of Department, seems to confirm that verifiers were more concerned about the fate of the students on the courses they are verifying rather than in the strict keeping to national standards and tended to agree to the grades that the colleges suggested for the students, rather than a close inspection of the portfolios.

External verifiers have also indicated to the colleges that they had voiced their concerns to

BTEC about the system, and to the NCVQ. At an open meeting in 1996/7 an external verifier stated that he had taken the views of colleges forward strongly to BTEC concerning this issue. This, I suggest, cast doubt on the effectiveness of a national system, particularly when examining how students are graded, which puts into doubt this criteria for effectiveness. The current system, as implemented, is not an improvement on the National and First Diploma system, but leaves the situation as it was before GNVQs were introduced, but with more confusion over what grades actually mean.

Clarity of the units

The way in which the GNVQ units are written is very different to that of the First and National Diplomas that were previously used at these two colleges. As detailed in Chapter 4 this system is in terms of outcomes rather than learning objectives. This caused problems during the Pilot year as staff found it difficult to gauge the depth to teach the units, and tended to teach to the external tests rather than the outcomes. In 1995 new units were published, which gave guidance notes and more assistance to the staff and students. Staff generally agreed that this was an improvement, although the staff thought that some units were better than others. They also said that the move to assessing each Element rather than each Performance Indicator was an improvement, along with the evidence indicators that are now included.

Students who had experienced the pilot year were more critical about the units, saying that they were difficult to understand. They agreed that the new units were much improved. I think we have to acknowledge, though, that on the National and First Diploma most lecturers gave resumes of the units to the students in simple, broad terms which made life easy for both staff and students. Now staff have to explain complex, outcome based

language to all levels of students. All students agreed that the units were basically OK, but did contain some unclear statements and were dogmatic in some areas. Both staff and students agreed that time was needed to explain the content of the units, and how the elements would be assessed.

On balance I have found that the way the units are written currently do not give a barrier to learning. What was apparent, however, was that the Pilot units were remembered with bitterness by both staff and students, and that it would take some time for the staff to get over the trials of that Pilot year.

External Testing

This area of the course was a completely new venture for the staff, apart from those who had also taught on CGLI Courses. Those that had rated the CGLI Multiple Choice Examinations much higher. During the year of the Pilot, 1994/95, the results of the BTEC external tests were very poor and included an alarming discrepancy in results between units. The pass mark for these tests, both Intermediate and Advanced was 70%. This meant for a test consisting of approximately 30 questions 24 questions had to be correct to obtain a pass. Using the April 1995 results as an example, the national pass rate for Mathematics for Engineering (Advanced) was approximately 3%, Science for Engineering (Advanced) approximately 5% and Engineering Processes (Advanced) approximately 70%. The results for the Intermediate course were equally bad. For the same set of national tests, April 1995, the pass rate for Science and Mathematics (Intermediate) was approximately 5%, Engineering Materials and Processes (Intermediate) approximately 32% and Engineering in Society and the Environment (Intermediate) 67%. (BTEC, 1995). The results for students in both colleges were broadly in line with these national results. All of the staff

and some of the students experienced these results, which were still recent at the time of the research.

As the units changed for 1995/96 so did the test specifications and the tests themselves. This has to be borne in mind when analysing the comments received. The national results improved drastically by April 1996, with pass rates for the problem units of Mathematics and Science improved to approximately 35% and 40% respectively (BTEC 1996). Staff and students complained that the first set of tests were unfair, in that they were too difficult to be completed within an hour and some questions were more difficult than others, but carried equal marks.

The new series of tests was felt by the staff to be too easy in some areas, particularly as the tests were multiple choice. Staff complained that the tests did not give an acceptable test of knowledge, and that some tests (Engineering in Society and the Environment in particular) just required common sense to answer correctly. Some staff questioned the validity of the BTEC multiple choice examinations, whilst accepting the CGLI style as valid. The students all rated the tests as being fairly easy, the second year students giving a higher mean, probably instinctively comparing their first year examinations from 1994/5 to the 1995/96 examinations.

The external tests were introduced to help give the GNVQ parity with the A Level and GCSE system in terms of a national, external assessment and is, therefore, important for the setting of national standards in vocational education. In terms of effectiveness, does the idea of an external, short, multiple choice test lead to parity? I find that the answer has got to be no. It was thought by the respondents that the tests were a good policy, but that

they could not compare in any way with A Level examinations.

One aspect that the students had realised was that they had to pass all the tests, with 70%, whereas with A Levels and GCSEs a broad band of pass marks are allowed, and a student can get into Higher Education with just one pass at A Level. To achieve the same with GNVQ the whole course has to be passed, twelve Vocational units and three core skills units. The students thought this penalised them and gave an advantage to the alternative system.

NVQ Provision

During 1994 BTEC announced that it had reached agreement with EnTRA (The Engineering Training Authority) that the EnTRA Foundation NVQs (Level 2) in Mechanical and Electrical/Electronic Engineering could be Additional unit(s) within BTEC Engineering GNVQs. These NVQs could be awarded by BTEC and the students would received credit for this on their GNVQ Certificates. This policy was welcomed by all the staff involved in the research. The College A staff were particularly pleased as the college had included practical work accredited with the EnTRA TR21 Technician scheme as part of the National Diploma. The lack of practical work had been an early criticism of the GNVQ in Engineering, before the agreement was announced.

In both colleges students were given the opportunity of working towards the NVQs. The way in which this work was carried out was different in the colleges. In College A all students studied the NVQ in Electronics alongside the GNVQ Optional unit Electronics, with the NVQ Mechanical units being completely optional. About 20% of the students opted to work for the Mechanical qualification. In College B all students worked towards

the Mechanical NVQ as a mandatory part of the course. The Electrical/Electronics NVQ was to be covered in the second year of the Advanced course, which had not started at the time of the research. Students from this College did indicate, however, that they were looking forward to starting practical work in Electronics.

All students were very positive about the practical element of the course, saying that it helped with the theoretical part of the course with some also acknowledging that it was an additional unit on their certificates. The choice in College A of an option to do the Mechanical NVQ worked well, with some students saying that they didn't like doing mechanical work. All students had to do some work in this area as part of the Engineering Processes unit, and some felt that this was enough. The way of integrating the NVQ Electronics and GNVQ Electronics was welcomed by students as helpful in linking purely theoretical work with the practical aspect of Electronics. This aspect of the course was a success with both students and staff.

Access to Education and Employment

A large part of the credibility given to the GNVQ by the Government was whether the GNVQ would improve access to both employment and Further/Higher Education. In particular the Government instigated the GATE project in which students from the Advanced courses were encouraged to apply to go onto Higher Education. In the first year of access, 1994, the Government issued instructions that all GNVQ applicants would be guaranteed an interview. Most of the Engineering Advanced students go into Higher Education whereas a large proportion of the Engineering Intermediate students go into employment, just as happened previously with the First Diploma.

The research showed a variation of views on this topic. Some staff were very positive about this, saying that the GNVQ gave students good technical skills. Others agreed, but said that this was despite the GNVQ and relied on the knowledge that this course was a replacement for the National and First Diplomas. At the time of the commencement of the research there was in place a timetable for the withdrawal of National and First Diplomas. This would mean that all students in Engineering (and other disciplines) would have to study the GNVQ Advanced in Engineering, and part-time students would have to as well. This all changed in February 1995 when BTEC sent out a letter to all centres saying that all National Diplomas would be available for as long as there is a need for them, in effect for the foreseeable future. The timetable for withdrawal of First Diplomas would continue, and by 1998 they would be completely withdrawn. The course Co-ordinator of College B said that if this had been known earlier his College would not have been part of the pilot. Staff at College A also said that they only agreed to part of the pilot because they knew they would have to change eventually. My earlier intention of investigating how employers view the GNVQ had to be shelved, because of the fact that most employers continued to use the First and National Certificate for their employees.

The high regard given by employers to the National Certificate in Engineering is highlighted by an article in the Times Educational Supplement (TES, January 28th 2000) entitled "Rover is top dog now". This examines the performance of engineering apprentices at the Cowley Rover Plant in Oxford. The article says that German industrialists and engineers are impressed with this British apprenticeship scheme. The apprentices at Oxford complete an NVQ in Engineering, but as part of the course also study for a BTEC National Certificate at Oxford College of Further Education, where I was an Assistant Head of Engineering.

The students who perform very well on the National Certificate Course can apply to enter the Rover Partnership Degree Course at Warwick University. Other students continue their studies with the Higher National Certificate in Engineering. This example shows how the traditional National Certificates are being used very effectively by employers, whereas the GNVQ in Engineering is very poorly subscribed to and is only used for full time students in colleges.

Staff and students from both colleges said that students were prepared well for employment only when linked with the NVQ, as discussed earlier. It was very clear that staff thought that access to employment and education was good, but not better than with the National and First Diplomas. So in terms of effectiveness the courses are effective but is this an advantage when the situation has not improved over the previous system? I have to say no it isn't.

Comparison against First and National Diplomas

This effectiveness parameter only concerned the staff, as the students would not have had experience of either the National or First Diploma. As would be expected this parameter caused a lot of discussion by the staff, with opinion highly in favour of the original qualifications. My research found that there was a reluctance to change to the new qualification, and this was exacerbated by the problems the staff faced with the Pilot year. A number of staff indicated that they would like to return to the National and First Diplomas.

In answer to the question, staff indicated that the comparison depended to some degree on the subject area. It was felt by both sets of staff that some of the topics in the units

compared quite well to the National and First Diplomas, but most areas compared very badly. This was mostly the fact that the technical units contained more information than the standard BTEC units. The Microelectronics optional unit was cited by staff as an example. This unit contained most of the material found in the two separate BTEC units, Microelectronics Level 2 and 3.

Two features of the GNVQ, the external tests and the grading scheme, were cited in particular as being very poor compared to the BTEC Nationals and Firsts. These are covered in previous sections of the chapter, but it was obvious that these two areas gave grave concern in the comparison. It was stated, however, by staff in College A that the external tests could give a good check across colleges in terms of standards, but only if the tests themselves were of a good standard and fair. The grading scheme, as previously noted, gave only a single grade for the course which staff viewed as a retrograde step and could affect students progress. In both colleges this question concerning comparison gave very low scores on the questionnaire, with College B giving the lowest staff score of all in both colleges.

Another important point that staff used in their comparison was the success rate of the students. During the GNVQ pilot year this was very much lower, largely because of the external tests, but also in terms of motivation. Staff said that once students had passed the tests they tended to think they had passed the unit and relaxed. It had then been hard to motivate them to pursue and complete their portfolio, without which they would not pass the course. This gave a quandary; if the tests were taken towards the end of the course this gave a bottleneck of a number of tests to be taken, and then the students would possibly have to come back at the end of the course to take the re-tests. On the other hand if the

tests were taken earlier the problem of motivation occur. This did not happen with the National and First Diplomas as End Tests were taken at the chronological end of each unit, with re-tests allowed within a few weeks of the test. In general staff thought that the GNVQ units were of a comparable standard, but that the assessment issues, grading and external tests, led to a view that the GNVQ did not compare favourably with the National and First Diplomas.

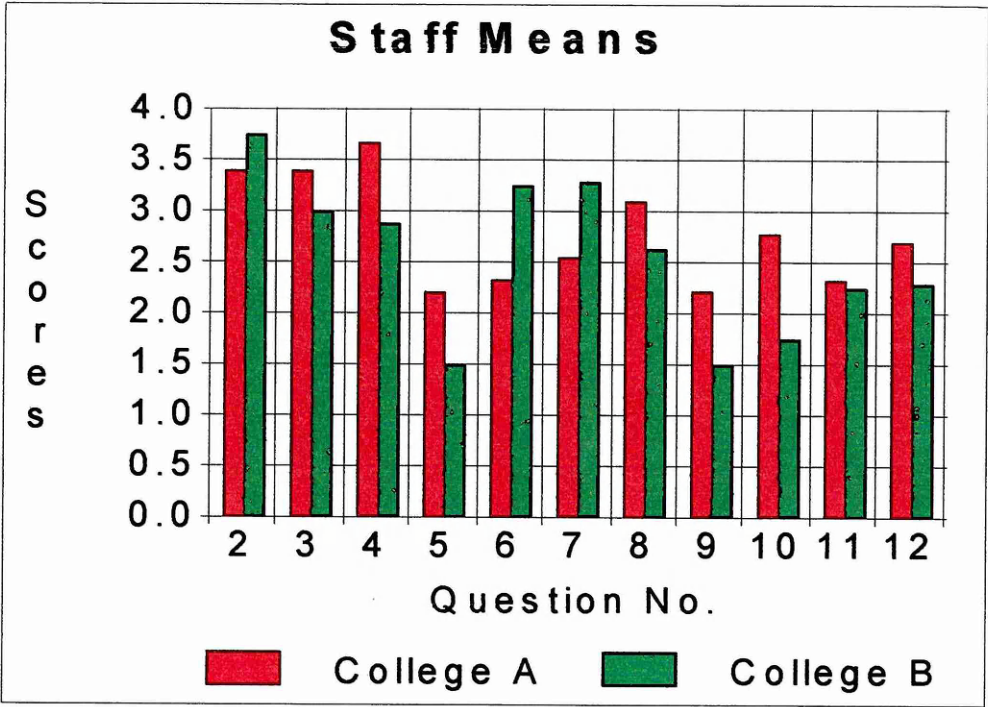
Overall Opinion of the course

Whilst not being a direct part of the effectiveness criteria, this question gives further information about the course from both staff and students. There were similar responses and scores from both colleges from staff and students. As expected the staff responses were lower than the students. It is interesting to note that the students in College B had a higher opinion than the students in College A even though the staff opinion was lower. This may be interpreted as giving credence to the view that the staff did not let their personal opinions get in the way of their performance as lecturers when teaching students. This is also backed up by the data from Question 7 of the Questionnaire; Have you found your unit lecturers; Approachable or Unapproachable? The students from both colleges gave high mean scores for this question: College A; 3.92, College B; 4.11. The students also positive verbal responses in the interviews (ref. Chapter 5).

The Advanced staff from College A gave a more positive response than the Intermediate staff again reflecting the very poor pilot results for the Intermediate cohort. Staff from College B pointed to the change in effort, in their view, from teaching to assessing. The comments from students from both colleges were very positive, although pointing to some difficulties in the mathematics part of the curriculum. This, though, was not any different

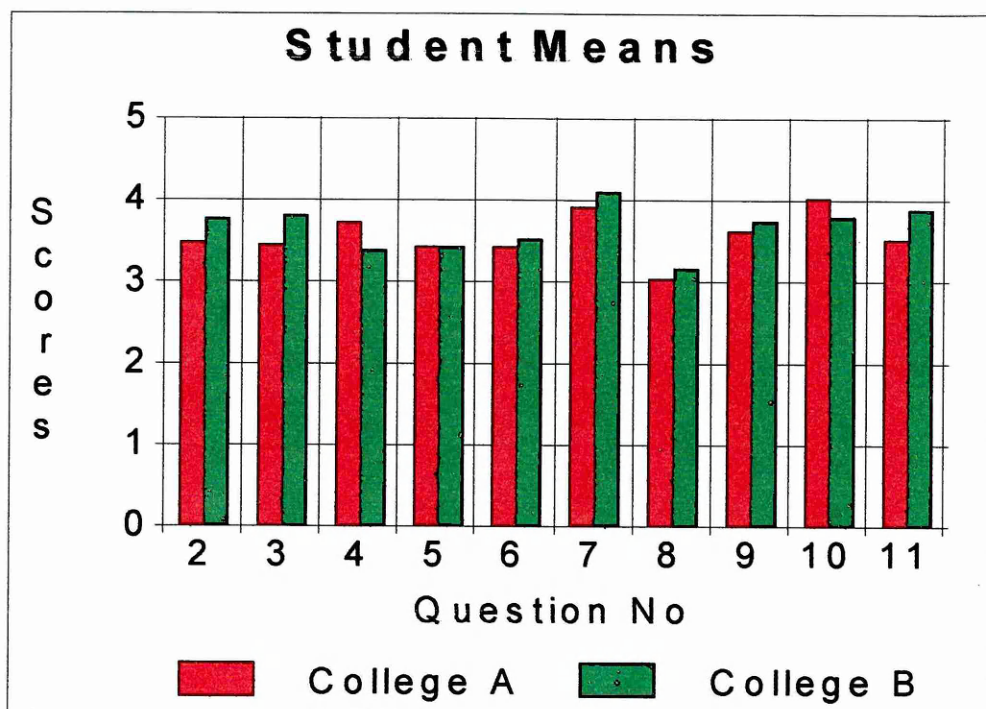
to comments from National and First Diploma students in previous years. It was also clear that the students felt they had made the correct decision to study for the GNVQ. It is interesting to note that most of the students on the course at the two colleges did not have a choice; it was the GNVQ in Engineering or A Levels, no National or First Diplomas being available in their area.

In overall terms staff mean scores show a similar pattern, as indicated by the chart below. The chart shows low points at Q5, Grading and Q9, Comparison against First and National Diplomas. In general the scores for College A were higher than College B, except for Q6,



The Language of the GNVQ, and Q7, external tests, where College B gave higher scores. The pattern of the scores is, however, similar.

As can be seen from the second chart, the student scores from both colleges are very



similar, with the highest scores at Q7, the Lecturers Approach to their students, and Q10, the NVQs. The lowest scores are for Q8, the way the units are written. These results show that the responses from the students are similar even when the scores from the lecturers are really quite low and show differences from College A to College B.

2. Conclusions

This conclusion will reflect the overall effectiveness of the GNVQ, and can be assessed by examining the course in isolation and also comparing it with the provision that existed previously. This consisted mainly of the BTEC First and National Diplomas.

The aim of the introduction of the GNVQ was to increase the esteem that vocational courses obtained previously. If we look at the numbers of students who started GNVQ courses in the Academic year 1996/97 this will give an estimate as to how effective the

Government has been in persuading young people to enter vocational education. In 1997 74,843 students were tested on the Advanced GNVQs and 99,898 were tested on the Intermediate GNVQ (TES, 1997). Of the Advanced students 36,673 achieved an Advanced GNVQ award, and of the Intermediate students 45,953 achieved the Intermediate GNVQ Award. The total numbers of students do reveal that a large number of young people are participating in the GNVQ, which is what the Government set out to do.

When these figures are compared to the National and First Diplomas, which were the precursor of the GNVQ, using the figures issued by BTEC for the academic year 1991/92, the last full year before the introduction of the GNVQ, some interesting facts emerge. In that year approximately 90,000 young people were registered for the National Diploma, and approximately 51,000 received an award. Also, approximately 51,000 young people were registered for the First Diploma, of whom approximately 32,300 received an award (BTEC, 1993).

The figures show that there has been a large increase in young people studying for vocational qualifications at the Intermediate Level, with an extra 50,000 students, approximately, being registered and an extra 14,000 awards being achieved. The problem that the figures show is that whilst 65% of students on First Diploma courses achieved the award, 46% of students received the GNVQ Intermediate. This failure rate has caused the awarding bodies much concern, and the current policies for revising the GNVQ outlined by the Capey Review are intended to reduce this figure. It has to be said that the large increase in numbers is to be welcomed in attempting to provide vocationally educated young people for the needs of the economy.

The figures for the Advanced GNVQ are disturbing. The figures actually show a decrease in the number of students registered and in the number of awards, which rather goes against the whole point of an alternative to the A Level system that would increase the number from the vocational side of education. I will return to this topic, and the access to HE, later in the chapter.

In terms of Engineering, the numbers studying for the GNVQ are very low. In 1997, nationally 613 students achieved the Advanced Level, and 2120 students achieved the Intermediate Level. This compares with approximately 4,400 being awarded a National Diploma in Engineering in 1992, and approximately 4,000 students awarded a First Diploma in Engineering in the same year. This shows that colleges are not running GNVQ courses in the same numbers as the National and First Diplomas before the introduction of the GNVQ. This is due to BTEC changing its policy on the removal of National Diplomas, and allowing colleges to run National Diplomas for the foreseeable future.

Another important factor in the rationale for introducing the GNVQ was, at Advanced Level, improving the access to HE for students in vocational education. Again this can be examined by looking at the figures produced by BTEC and UCAS. Firstly, the number of students with National Diplomas entering HE in 1992 were 29,580. This includes both HND courses and Degree courses and is the number actually starting HE. The number of students applying to UCAS for places in HE with Advanced GNVQs in 1997 were 22,853, (UCAS, 1997a). This figure represents 6.5% of the total applicants to UCAS in 1997. It can be seen that the number of vocational applicants has decreased since 1992 by at least 6,727 students, as the figure from UCAS was applications for places. Inevitably some of these would not actually take a place. Nearly half of the 1997 applications from GNVQ

came from the Business sector, 10,522. This compares with 8,900 from the National Diploma in 1992. In 1997 Health and Social Care and Leisure and Tourism also proved to be popular routes into HE. The low number studying for the Advanced GNVQ in Engineering is reflected in the number applying for university places. In 1997 there was 472 applicants from this sector.

It is clear when looking at the figures that the aim of providing extra places in HE for students in vocational education has failed. Although the total numbers of students studying for the Advanced GNVQ has increased since 1992 the numbers are still less than for the equivalent National Diplomas before that date.

In terms of employment the situation is similar to that for the National Diploma. Employed young people studied mainly for the National or First Certificate rather than the full-time National Diploma, and this has continued since the introduction of the GNVQ. In the early days of GNVQ there was a suggestion from BTEC that the GNVQ could be offered to part-time students in place of the National and First Certificates. Since BTEC decided to allow the National Diplomas to continue, this issue has not been raised. This means that the vast majority of those studying for the GNVQ remain full-time students. In the two colleges used for the research a similar number of young people went into employment from the GNVQ as for the National and First Diplomas.

Another of the main aims of the GNVQ was to provide a national standard for vocational education. My research has shown that in engineering this is a problem area, in that the external tests are seen to be now too easy and do not provide any kind of rigorous testing of knowledge. The external verification is seen to be weak when examining students'

portfolios, particularly in terms of the grades students receive. There does not appear to be any improvement in achieving national standards than from the days of the First and National Diplomas. In practice the work of external verifiers is similar to that of moderators (who moderated National and First Diplomas) who tended to use a subjective rather than an objective approach that national standards require.

When attempting to assess whether the GNVQ is effective or not we have to look at it in two ways; at the course in isolation and in the context of what happened previously. Firstly the GNVQ has attracted very large numbers since 1992 in all the three areas, Foundation, Intermediate and Advanced. The Foundation award has proved mainly popular in schools, with nearly 23,000 registrations, but in engineering the numbers registered is very small indeed at 786. The large number of registrations for the Intermediate award has been a spectacular success since the introduction of the GNVQ, except that in Engineering the numbers continue to be small. A major problem with the GNVQ has been the low pass rate in all vocational areas. As discussed in Chapter 4 this has been a concern for all involved, and it remains to be seen whether the changes in the assessment regime will improve on this.

The students who were interviewed and responded to the questionnaires generally felt positive about the course, particularly in the practical elements of the course in electronics and mechanical engineering. All the means of the students' responses were above 3 in a range of 1 to 5, thus showing general satisfaction. It has to be noted, though, that none of the students had experience of First and National Diplomas so had no basis for comparison. The staff were particularly concerned about the grading structure of the GNVQ and generally had a low overall opinion of the GNVQ. College A gave a higher

overall opinion than College B, and this appeared to be tied in with how the new course was introduced and the availability of staff development. This aspect warrants further investigation.

When investigating the GNVQ and comparing it against the First and National Diplomas a different picture emerges. The numbers entering the course at the lower level, Intermediate, has increased by a large amount: from 51,000 students registered on the First Diploma in 1992 to 99,898 students being tested on the Intermediate GNVQ. At the Advanced level this is not the case, with numbers of students less than on the National Diplomas, both in terms of registrations and of success, the numbers entering HE also being lower than from the National Diplomas. The fact that BTEC suspended the withdrawal programme of National Diplomas shows how highly the course was regarded by colleges, employers and by bodies such as the Engineering Council, BTEC and EnTRA.

It became clear to me from reading the literature in the course of my research that the GNVQ was implemented for political rather than for educational reasons, and the GNVQ as an outcome based course originally piloted in 1992 has changed markedly over the years, away from its outcomes based approach.

The number of students enrolling for courses and applying for HE shows that the gap in parity of esteem between academic and vocational courses is still as wide as ever. A research project in 1997 (Foskett and Hesketh, 1997) has shown that the recent innovations in Further Education have not changed school leavers' opinions about the best route to HE. The research showed that the major factors in students' choice of course is the opinions of teachers, mostly career teachers. Young people still see the A Level as the main route to

HE and the low numbers of applicants with GNVQ to UCAS strengthen this view.

My overall conclusion is that the GNVQ has been an effective course in its own right when looking at the effectiveness parameters, but that at the Advanced Level it has not increased the participation in HE that the government would have liked. The GNVQ has still not improved the status of vocational education, as the research (Foskett and Hesketh, 1997) has shown. The main plus for the qualification has been the increased participation of young people in vocational education at Intermediate Level.

This research has been primarily concerned with Engineering, and it has shown that in this sector the GNVQ has not been effective nationally. In the colleges in which this research was based the GNVQ has not increased participation, but nor has it decreased participation, the number of students being approximately the same. The students were overall pleased with their studies, but the staff had major misgivings with the course which have been repeated elsewhere in the Capey Report. I rather doubt whether the percentage of 6.5% of applicants to UCAS will be increased radically, as the total population studying in vocational education has not changed much in overall terms at the Advanced level since the introduction of the GNVQ in 1992. My research findings are also reinforced by the research into young people's views from the survey by Foskett and Hesketh in 1997. It would appear that young people decide what course to study without much regard to the wishes of the Government. The most telling proof of this is that the numbers studying for the Advanced GNVQ has not increased from that of the National Diploma since 1992, despite the large amount of advertising that has been provided by the Government. It remains to be seen whether the amended qualification, now being piloted, will make any difference to the participation levels nationally.

Proposals for the reform of A Levels were introduced in 1997 designed to blur the divide between academic and vocational qualifications. These proposals, called Curriculum 2000, are being considered by ministers and it is hoped that they will be introduced by the year 2001. This will include a reformed GNVQ based at the value of one A Level with a completely revised grading structure. The A Level, however, will continue to be the benchmark for post 16 education and ministers are wary of changing it too radically. I think that if this continues vocational education will always appear to be second best in the eyes of the public.

It is appropriate at this stage to include some reflections upon my research and the methods that I have used. When examining my questionnaire in hindsight I have found that one or two questions could have been framed better, as they are either not clear or are open ended. I do not think, however, that this has effected the results as there are no questions that give widely different results to that which I would expect from other results and the triangulation gained from the interviews, which were particularly successful.

I was encouraged at how the actual practice of research went, particularly the way the effectiveness parameters worked. I had to examine the GNVQ and what it was proposed to do in terms of raising skill levels, e.g. Core (Key) Skills, and the students' participation in HE or FE. I also had to change the questionnaire when colleges started to include the EnTRA NVQ Units into the GNVQ, which had particular importance for engineering students. When BTEC withdrew the timetable for the cessation of National Diplomas I had to rethink my research because I was going to include employers and the issue of training for employment. Originally the National Certificates were going to be withdrawn,

and that would have led to a large number of engineering students studying for the GNVQ in engineering. As it happened the issue of employment became much less important, with the progression of students into HE or other forms of education being of greater importance. This also meant that any conclusions about the GNVQ and employment are tentative, in that I could not include employers in the research.

In College A there were 70 intermediate students who were attending college full time who were employed, but this scheme only lasted for one intake before being shelved. The company's students at the time of the research were, in effect, full time students with only limited input from their company. Whilst the company were complimentary about the scheme and the GNVQ, the scheme was only used for the one group of students.

To compete in the world this country still needs to provide a well educated workforce for industry and commerce to function properly, particularly at the present time when the economy is expanding and skills shortages are present. This is true particularly in the high technology areas of the economy, and my research shows that the introduction of the GNVQ has not improved the provision of these skills from that provided for by the National and First Diplomas, nor the hoped for increase in HE participation by vocational students. The numbers of students with a vocational background applying to go to university is still very low, at approximately 6% of the university intake. It will be interesting to explore at a later date the effectiveness of the curriculum 2000 initiative in the broadening of the post 16 provision in this country. Unless this initiative makes a big difference to post 16 education in the future, my research suggests that nothing will change, nor has it changed over the last eight years.

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GNVQ EFFECTIVENESS SURVEY - STAFF

I am carrying out a research project with the Open University on the effectiveness of GNVQs, using the Engineering GNVQ as a case study. I would be most grateful if you would complete the following questionnaire, and I can guarantee total confidentiality.

Please ring the number that most agrees with your opinion, on the scale of 1 to 5, with 5 being the most positive opinion on a topic. There is additional space for comments after each question. Thank you for taking part in the survey.

Years of teaching experience

1.	What course are you currently teaching on;				
	Foundation		Intermediate		Advanced

2.	Do you understand the Core Skill requirement of the GNVQ;				
	Well				Not at all
	5	4	3	2	1
	Comments				

3.	Do you believe that the Core Skill requirements are helpful or unhelpful to the students' progression to employment or F/H.E.;				
	Helpful				Unhelpful
	5	4	3	2	1
	Comments				

4. How well do you understand the system for grading students' work in the GNVQ

Well				Not at all
5	4	3	2	1
Comments				

5. What is your opinion of the Grading Scheme;

Good				Bad
5	4	3	2	1
Comments				

6. Have you found the way the GNVQ units are written;

Clear				Unclear
5	4	3	2	1
Comments				

7. Do you think the external tests are;

Reasonable				Unreasonable
5	4	3	2	1
Comments				

8.	Have you found the staff development you have received;				
	Helpful				Unhelpful
	5	4	3	2	1
	Comments				

9.	How would you compare the GNVQ against the National and First qualifications;				
	Better than				Worse than
	5	4	3	2	1
	Comments				

10.	How do you think that the GNVQ is preparing students for Higher Education;				
	Well				Badly
	5	4	3	2	1
	Comments				

11.	Do you think that the GNVQ is preparing students well for employment;				
	Yes				No
	5	4	3	2	1
	Comments				

12. If your students are studying for an NVQ as part of the course, do you think this has enhanced their learning;

Well

Poorly

5

4

3

2

1

Comments

13. What is your opinion of the course so far;

Good

Bad

5

4

3

2

1

Comments

Thank you for taking part in the questionnaire.

M J Trinder

Appendix 2. Student Questionnaire

GNVQ EFFECTIVENESS SURVEY - STUDENT

I am carrying out a research project with the Open University on the effectiveness of GNVQs, using the Engineering GNVQ as a case study. I would be most grateful if you would complete the following questionnaire, and I can guarantee total confidentiality.

Please **ring** the number that most agrees with your opinion, on the scale of 1 to 5, with 5 being the most positive opinion on a topic. Thank you for taking part in the survey.

Your age at commencement of the course
----------------------------------------	-------

Are You	Male	Female
---------	------	--------

1.	What course are you currently studying ?		
	Foundation	Intermediate	Advanced

2.	Do you understand the Core Skill requirement of the GNVQ;				
	Well				Not at all
	5	4	3	2	1

3.	Do you believe that the Core Skill requirements are a good idea?				
	Good				Bad
	5	4	3	2	1

4.	Have you understood the system for grading your work in the GNVQ;				
	Well				Not at all
	5	4	3	2	1

5.	What is your opinion of the Grading Scheme;				
	Good				Bad
	5	4	3	2	1

6.	Have you found the instruction sheets for the assignments;				
	Easy to follow				Difficult to follow
	5	4	3	2	1

7.	Have you found your unit lecturers;				
	Approachable			Unapproachable	
	5	4	3	2	1

8.	Have you found the way the GNVQ units are written;				
	Clear			Unclear	
	5	4	3	2	1

9.	Did you find the external tests;				
	Easy			Difficult	
	5	4	3	2	1

10.	If you are working towards NVQ qualifications, do you think that this has;				
	Improved your learning			Made it more difficult	
	5	4	3	2	1

11.	How would you rate your satisfaction of the course so far;				
	Very satisfied			Unsatisfied	
	5	4	3	2	1

Please write any other comments about the course you would like to make, or expand any of the above questions, please write in the space provided.

Thank you for taking part in the questionnaire.

Additional comments (continue overleaf if necessary)

Appendix 3. List of interview questions

Question 1. What is your opinion of the GNVQ Units that have been developed that you have seen?

Question 2. Core Skills are an essential part of the GNVQ. How well do you think they fit in with the Vocational Unit specifications?

Question 3. The GNVQ units are not individually graded. How do you view the overall grading themes as currently presented?

Question 4. Do you think that the GNVQ will give the students/you the necessary vocational skills, knowledge and understanding for a career in engineering?

Question 5. Many of the students/you progress onto H.E. (or F.E.) Do you think that the GNVQ will give them/you the necessary skills, e.g. study skills, communication skills and knowledge, to succeed?

Question 6. If the course includes the provision of working towards the NVQ 2 in Engineering, do you think that this has improved the provision of the GNVQ or not? (part of main study only).

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